



CITY OF HURON MOBILITY, ACCESS AND SAFETY PROJECT

*Funding provided through a California Department of
Transportation (Caltrans) Environmental Justice: Context-Sensitive
Transportation Planning Grant and the City of Huron.*

February 2014



Prepared by:

Local Government Commission

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Opticos Design

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Chapter 1: Introduction



Figure 1. Aerial view of the City of Huron and the main corridor, Lassen Avenue (State Route 269).

OVERVIEW

This conceptual planning document is the outcome of an intensive community-based planning process in Huron, a rural town of approximately 7,000 residents in Fresno County and located approximately 15 miles east-northeast of the city of Coalinga. The purpose of this plan is to identify short-, medium- and long-term strategies to improve safety and mobility choices for residents of all ages and abilities.

The planning effort and resulting document was made possible through a California Department of Transportation Environmental Justice Planning Grant received by the City in partnership with

the Local Government Commission (LGC) and Valley LEAP (Latino Environmental Advancement Project). The LGC is a Sacramento-based nonprofit organization that works with local governments and communities to build healthy, livable places. Valley LEAP, an environmental justice community institution in Fresno California, engages San Joaquin Valley communities for grass roots leadership development, social justice and the empowerment of Latinos, immigrants and youth to achieve environmental sustainable justice while improving community health.



A variety of trucks and agricultural vehicles rely on Lassen Avenue.



Many large trucks such as the one in the above photo use 9th Street.



A mother crosses Lassen Avenue in a crosswalk that is barely visible to motorists.

LGC assembled a multi-disciplinary professional team to develop the plan. The LGC facilitated the community engagement process and prepared the document. Valley LEAP was the lead in conducting outreach to the community and coordinating with the City. Opticos Design, Inc. (Berkeley, CA) provided community planning and design expertise, with traffic engineering support from Nelson\Nygaard Consulting Associates (San Francisco, CA).

BACKGROUND

Community and Lassen Avenue Characteristics

The city of Huron is a rural community founded in 1888 as a water stop along the Union Pacific Railroad's western route. The city lies in the western region of the San Joaquin Valley and is situated east of Interstate 5 and south of State Route 198 in Fresno County. The local economy is primarily based in agriculture, and agriculture-related industries, growing crops notably of onions, tomatoes, lettuce, melons, garlic, and cotton during the various seasons.

The city of Huron is home to a population of 6,754 according to the 2010 U.S. Census. According to the 2010 United States Census Huron has the highest proportion of people of Hispanic descent in the United States (nearly 100% Latino). The community's population also changes according to the seasons and more than doubles during the (lettuce) harvest season from March to October (early Spring & late Fall).

Huron is a compact city with flat terrain, where residents should be able to walk and bicycle to local destinations, including community centers, stores, parks, and schools. However, conditions for pedestrians and bicyclists are challenging given how they

feel unsafe with current pedestrian street connections and crossings, cars and large trucks, and lack of bicycle facilities.

State Route 269 (Lassen Avenue) serves as a major corridor and main street through the City. State Route 269 is classified as a conventional state highway open to local and regional bicycle travel. Residents have expressed safety concerns when walking and bicycling on this corridor, especially with the excessive speeds of traffic. Unnecessarily wide streets encourage speeding and are difficult to cross. There are few designated high-visibility crossing areas for pedestrians to safely cross the corridor.

The City's General Plan supports this as a mixed-use, transit-oriented, and multi-modal corridor. Additionally, in the past there has been sporadic flooding along State Route 269 that impedes crossing by pedestrians and vehicles, requiring detours that can cause motorists to travel 10-20 miles out of their way.

Pedestrian and possible American Disability Act (ADA) concerns can be found in the City of Huron, such as missing or substandard sidewalks in certain locations, pedestrian barriers on sidewalks, curb cuts in the pedestrian pathway, and missing or substandard ramps. These issues will need to be addressed for any future projects constructed along any portion of this highway.

Huron is supported by public transit opportunities. Fresno County Rural Transit Agency (FCRTA) operates in Fresno County. FCRTA has a Coalinga to Fresno bus route with stops in Huron at 8:30 am and 5:30 pm. This bus route runs Monday through Saturday. There is also a demand response service via Huron Transit (a part of FCRTA). This service runs from 6 am to 6 pm Monday through Friday. FCRTA also operates an intercity express service that runs a few times between 7 am and 7:30 pm.



Sidewalks are missing in a few locations along Lassen Avenue such as this section north of Railroad Avenue on the west side of Lassen Avenue.



The City has added landscaped medians on the southern portion of Lassen Avenue.



Bicyclists in Huron have to make their way through most the community without the benefits of bicycle lanes, and other features to improve safety and visibility.



There are several parks and recreation areas in Huron available to the community, such as the neighborhood park (top) between O Street and Filbert Lane and Chestnut Park (above) off Palmer Avenue.

The City has been able to get new commercial development along the northern portion of Lassen Avenue. Family Dollar (top) offers more shopping choices, and the new construction across Lassen Avenue from City Hall will house new retail and office space.



Certain areas of Lassen Avenue have a unique character with paseos and contain pedestrians amenities such as shading and seating

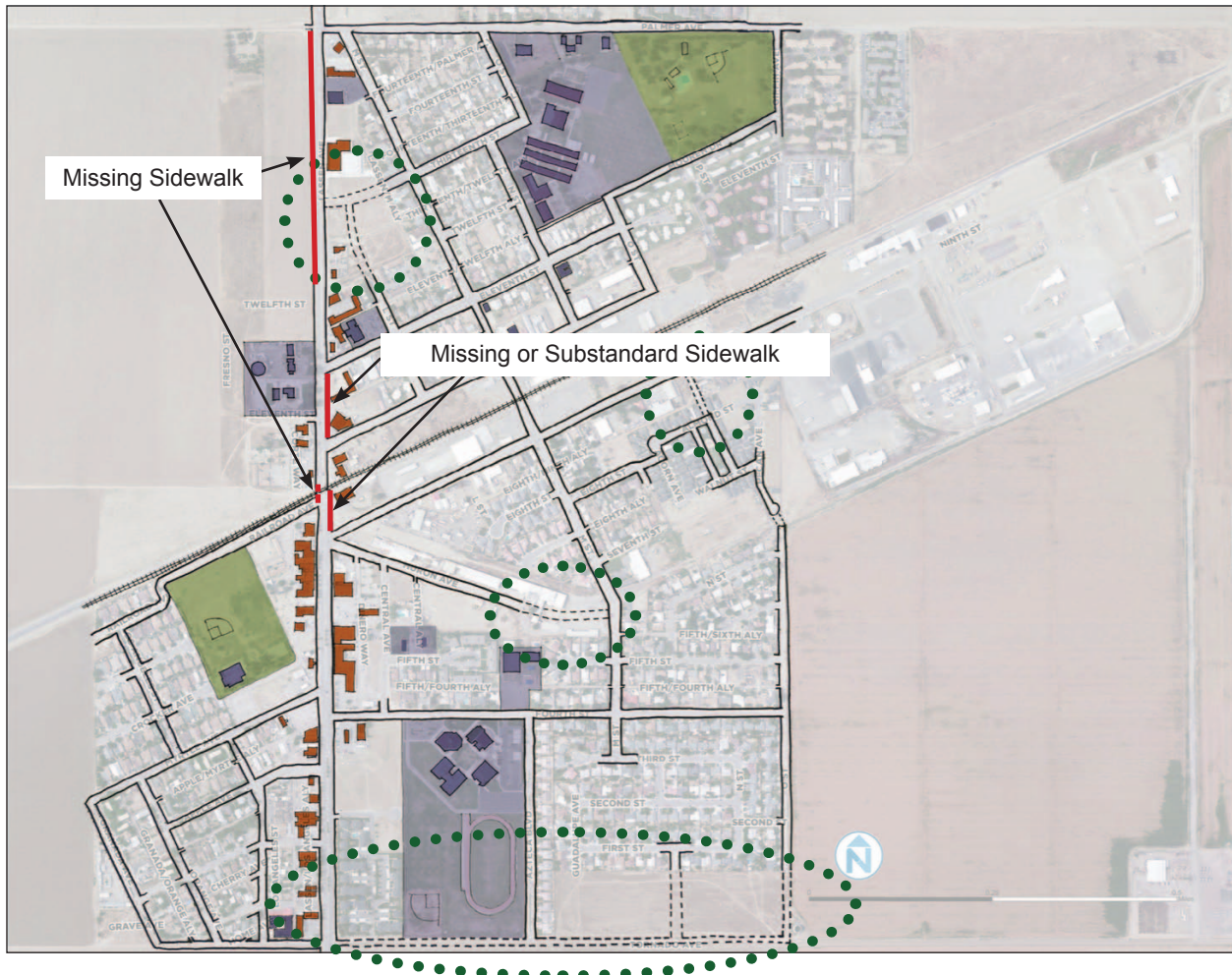


Figure 2. Overview of connectivity gaps within Huron's street system. The figure above shows where there are missing street connections (green dots) as well as missing sidewalks (red lines) in Huron.

According to the Caltrans Transportation Concept Report, the segment of State Route 269 in the City of Huron is identified as a four-lane conventional highway. The AADT (Annual Average Daily Traffic) for this corridor is currently 5,200 cars per day, and expected to reach only 6,700 AADT (by 2035). The Level of Service (LOS) is currently Level B, and the Concept Report's 2035 target allows for Level D, but is projected to operate at LOS C or better.

The chapters that follow in this report will document the activities that were part of a design fair process to engage the residents of Huron and then provide concepts and strategies to improve infrastructure, mobility and encourage revitalization. The report will end with chapter on implementing and funding projects that come out of this report.

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Chapter 2: Design Fair Process

PURPOSE

Design fairs (or charrettes) are an increasingly popular tool for neighborhood and street design programs. Design fairs are community-based design exercises that come out of a sincere intent to have the public involved in a meaningful way to craft their own future. This format allows residents, users of a street, or whatever population is targeted to be the primary force behind the designs.

The process used for this project in Huron gives the public more meaningful involvement throughout the process, and rewards their effort with a preview of the final designs at the end of the week.

Local Government Commission staff handled tasks related to the project team and development of the schedule. Valley LEAP (Latino Environmental Advancement Project) took the lead in handling other details essential to the success of this Design Fair, such as finding meeting rooms and coordinating activities in Huron, especially engaging with local residents to explain the public workshops and encourage attendance. Nelson/Nygaard and Opticos Design provided the main transportation engineering and design services for the project.

From September to October of 2012, three advisory committee meetings were held with a group of residents active in the community of Huron, students, City staff and Caltrans. Participants at the meeting discussed the issues for the study area, the goals of the project and the design fair activities.

A design fair was held in October of 2012, and the input gathered from those activities form the basis for the recommendations in this report.



Rey León of Valley LEAP engages residents on Lassen Avenue.

OUTREACH METHODS

Valley LEAP took the lead in the outreach effort. Several outlets were utilized to help publicize the events for the design fair activities. English and Spanish-language flyers were distributed through various outlets. Valley LEAP worked with local churches to distribute information about the design fair in their newsletters, elementary and middle schools, health clinics, and managers at multi-family housing complexes. They also did outreach through local youth groups such as the Upward Bound Student Program at West Hills Community College and day care, as well as local family groups such as the parent Parent Institute for Quality Education group, Centro la Familia and Westside Family Services Network. Valley LEAP's youth contingent, Youth LEAP (Leadership for Environmental Awareness & Praxis) also got involved to help distribute flyers within the community to local markets and stores in the community. Public services announcements and an interview were provided to the Arriba Valle Central and Radio Bilingue.



Caltrans and City staff meet with the design team.



Local teens share their ideas on improvements to Lassen Avenue.

STAKEHOLDER MEETINGS AND INTERVIEWS

During the design fair the project team held meetings with stakeholders who have a common interest relevant to the study area. These groups are typically smaller to allow for more comfortable conversations about street crossings, parking, bicycle access, sidewalks, or street and safety issues in general. Stakeholder meetings were held with the following groups:

- Technical Focus Group
- Youth LEAP

Technical Focus Group

This meeting involved Caltrans, City staff and members of the design team. The purpose of this meeting was to introduce team members to staff from Caltrans, to review past design issues and solutions for Lassen Avenue that have come up in local discussions, and to get input on issues that should be addressed in this project. A separate discussion was held with the City's Traffic Engineer.

Youth LEAP Group

A session with teens from Youth LEAP was held on Saturday, October 27. This was an opportunity for them to share some of their ideas away from parents and other adults. Some of those ideas included:

- Bike lanes on Lassen Avenue.
- Better crosswalks on Lassen Avenue
- Roundabouts
- Better lighting
- Railroad arm and sign
- More Transit locations
- Community garden

Local Interviews

Because many residents interested in this process run their own businesses or needed to work, informal opportunities to get input were also taken as they occurred. These discussions took place in businesses or standing on sidewalks, at times while observing pedestrian and driver behavior.

Notes from the stakeholder meetings can be found in Appendix A of this report.



The workshop gets under way.



Young kids were able to have some fun during the workshop.

PUBLIC FAIR EVENTS

Three public workshops were held in English and Spanish over the course of the design team's visit.

Opening Session

The opening session of the design fair process was held on Thursday, October 25 at the John Palacios Memorial Community Center. Rey León, Director of Valley LEAP, welcomed participants to the workshop and provided background on the design project for Lassen Avenue. Paul Zykofsky, Associ-

ate Director of the Local Government Commission, followed Mr. León with an activity where participants were provided index cards and asked to write down their future vision for Lassen Avenue and Huron. After some of the participants read aloud their future visions, they were then asked to write down on sticky notes the five things they valued most about Huron and their community. The design team then collected and grouped the sticky notes on a nearby wall. Through this exercise everyone could see which values they most held in common with others in the community.

While design team members grouped the stickies, Paul Zykofsky conducted a presentation highlighting some of the components of placemaking and for creating more livable communities through highlighting what other communities have done. He also described some of the tools that could be used for improving Lassen Avenue and other City streets. These included topics such as traffic calming, pedestrian and bicycle facilities, and access requirements and techniques.



Some participants shared their visions for the community.

Values	Valores
<ul style="list-style-type: none"> • Work • History • Small town • Family and Friends • Security 	<ul style="list-style-type: none"> • Trabajo • Historia • Ciudad pequeña • Familia y Amigos • Seguridad



Participants wrote down the values most important to them and the design team grouped them together. The box on the left lists the five core values most important to the community identified through the activity.

Participants were then asked to take part in another exercise to help identify priorities for Lassen Avenue. After identifying locations and issues for the design team to address, participants were given adhesive dots to use as votes for the issues they felt were the most important. The results of this exercise are shown on the next page, and this information was carried over to help guide the project team in developing the recommendations over the course of the design fair process.

The evening was not over yet, as Ballet Folklórico entertained participants with some traditional Mexican performances, including ballet folklórico and Danza de los Viejitos, to close out the evening.



Everyone was treated to some traditional Mexican dancing during the opening workshop.

Community Walkability Audit and Design Workshop

On the morning of Saturday, October 27, the design team led a walking tour along Lassen Avenue, from the Huron Senior Center. The tour group observed existing land uses and street conditions, including design, walkability, traffic patterns, intersections, crossings, sidewalk conditions, and other features. The group shared ideas for some of the problems identified along the corridor.

Upon return from the walk audit, participants got light refreshments and then received a short refresher course on some of the tools available to address



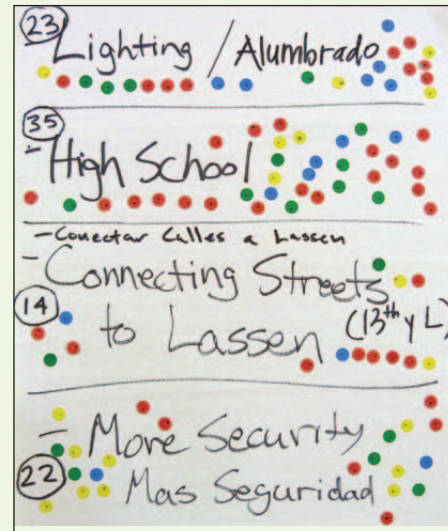
Residents voted on the issues most important to them.

Priorities

- High School
- Pharmacy
- Roundabout
- Lighting
- Security
- Activity club for families
- Stop flooding near bridge
- Well-marked crosswalks
- Signals
- Skate park
- Connect streets to Lassen
- Ambulance
- Back-in angled parking

**Prioridades**

- Preparatoria (High School)
- Farmacia
- Glorieta Moderna
- Alumbrado
- Seguridad
- Club de actividades para familia
- Parar inundaciones cerca del puente
- Cruces de calle bien marcados
- Semáforos
- Parque para patinaje
- Conectar calles a Lassen
- Ambulancia
- Estacionamiento diagonal en reversa



the priorities identified by participants on Thursday evening.

After the presentation, participants broke into table groups and began the complex task of making suggestions for corridor improvements. Each table group held energetic conversations as they discussed general and specific problems, and alternative solutions. These thoughts were then translated into design recommendations, which they drew on large aerial photographs.

During this exercise, project team members circulated around the room observing, commenting if appropriate, and answering questions when asked. This format keeps expert designers available, but gives community members the hands-on freedom to offer their own solutions.

Each group shared their ideas with the participants, and the project team took the input from these activities and began working on the initial recommendations for the corridor. Copies of the resident maps from this exercise are in Appendix B.



Participants broke into groups to make their recommendations...

Subsequent Design Team Activity

With the community's design work finished, the design team settled in to refine the details on the recommendations, and continue to observe vehicle, pedestrian, and bicycle activity on Lassen Avenue and elsewhere in Huron. At City Hall, the design team spent three days preparing draft recommendations and the closing session presentation. This included many ongoing discussions with team members and Huron City staff.



Then shared their ideas with the others.

Presentation of Initial Recommendations

The design team held a public workshop at the John Palacios Memorial Community Center on October 30, 2012 to present the first draft of recommendations to residents. Mayor Sylvia Chavez kicked off the evening by thanking all those that participated in the design fair. Paul Zykovsky then reviewed key findings from the previous workshops and meetings and shared concepts of the team's initial recommendations, including visuals of potential changes. At the conclusion, they opened the floor to comments and questions from those in attendance.

A listing of the comments is included in Appendix A.



Saturday morning Paul Zykovsky lead a walk audit through downtown...



Stopping along the way to discuss the issues at certain locations.

Chapter 3: Mobility Plan

ROADWAYS

Existing Roadway Design & Usage

North and south of Huron, State Route 269 is a conventional two-lane rural highway. Inside the city limits, the road widens out to five lanes – two lanes in each direction and a center turn lane. The curb-to-curb street width varies from just over 70 feet at the northern end of Huron, to almost 90 feet through the commercial heart of the downtown, and narrows back to 80 feet at the southern end. Caltrans projects an Annual Average Daily Traffic of 6,700 vehicles through Huron on Highway 269 (Lassen Avenue) in 2035, with peak hour traffic in the same year reaching 720 vehicles.

During the design fair, the design team proposed reducing Lassen Avenue to one lane in each direction with a center turn lane, adding bicycle lanes and various parking treatments depending on the available right-of-way and adjacent land uses. While the community in general was very supportive of improving safety on Lassen Avenue through a road diet, there was some concern that the narrower street would still need to handle peak harvest season traffic.

FRAMEWORK

Recommendations in this section will support the following plan framework:

- Create a Main Street that works for Pedestrians and Cyclists
- Improve intersections for vehicles and pedestrians
- Improve connections to Lassen Avenue
- Establish a bicycle network
- Create Gateways
- Build compact housing close to Lassen Avenue

The Federal Highway Administration (FHWA) has recommended road diets as an important safety countermeasure, at their website (http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_013.htm). As indicated at this website, “roads with 15,000 ADT or less had very good results in the areas of safety, operations, and livability.” The Highway Capacity Manual (HCM) suggests that seasonal peaking can be quite significant in rural areas, with the summer peak as much as 120% of the Average Annual Daily Traffic. Given this ratio, the Caltrans projected average peak hour traffic of 720 vehicles indicates a projected summer peak hour



Lassen Avenue at the north end of Huron.



Lots of large agricultural commercial vehicles use Lassen Avenue.

volume of 864 vehicles and an AADT of 8,040. For urban streets, the HCM suggests a base capacity of 1,900 vehicles per hour per lane, though they acknowledge that geometric design, presence of parking, and intersection controls can significantly affect capacity. In this setting where there are few interruptions to traffic flow on Highway 269, one lane in each direction plus a center-turn lane, would have more than enough capacity for the projected peak hour traffic. The traffic volumes as estimated for State Route 269 in Huron through 2035 are well within the thresholds for a successful lane reduction to a two lane roadway with a center turn lane.

Traffic Safety and Collisions

Nelson\Nygaard analyzed collision data from the Statewide Integrated Traffic Reporting System (SWITRS) from 2007-2011. Overall, Huron had relatively few collisions with no reported fatalities and few injuries. However, from community input

it was clear that the SWITRS database may not have captured all incidents, as there were several anecdotes about children being seriously injured attempting to cross Lassen Avenue. It should be noted that between the design fair and issuing this report, there was a recorded fatality on Lassen Avenue near 11th Street in June of 2013 when a pedestrian was hit by a large vehicle.

Most of the recorded collisions occurred where Lassen Avenue intersects with other streets, particularly at Myrtle Avenue and 4th Street. During the design fair, Nelson\Nygaard observed that this offset intersection is an important east-west route, which explains the high volume of crossing vehicles. Surprisingly, Los Angeles Street was the most frequently listed secondary road in collisions, even though it is a quiet residential street. The surrounding neighborhood has mostly uncontrolled intersections, though the steeply crowned road and deep gutters tend to act as “inverse speed humps” that slow traffic.

	Count	%
Total number of collisions in Huron	51	100%
Alcohol a factor	11	21.6%
Bicycles involved	1	2.0%
Pedestrians involved	4	7.8%
Collisions on Route 269	18	35.3%
Collisions at Route 269 (Lassen Ave.) at 4th St./Myrtle Ave.	10	19.6%
Killed	0	0.0%
Injured – Motorist	8	15.7%
Injured – Bike	1	2.0%
Injured – Pedestrian	4	7.8%

Figure 3. Basic Collision Statistics, 2007-2011. Source: SWITRS.

The most commonly reported primary collision factors (the causes of the collision) were turning without using turn signals, speeding, and alcohol use.

While the SWITRS database does not indicate a large number of collisions on Lassen Avenue, the residents of Huron do not perceive the street as safe for walking, biking or driving, and as explained previously, the road is designed for much larger volumes of traffic than it carries. This creates an opportunity to redesign Lassen Avenue in ways that better meet the needs of all its users including motorists, bicyclists, and pedestrians and to create a more complete street.

Rectangular Rapid Flash Beacon

The rectangular rapid flash beacon (RRFB) is a relatively new traffic control device that may be suitable for several unsignalized intersections in Huron. It consists of two pedestrian-activated yellow beacons that have a bright, wig-wag flash that is very visible to drivers.

Testing carried out under the Federal Highway Administration (FHWA) experimentation process has demonstrated that the RRFB achieves very high rates of drivers yielding to pedestrians.

The RRFB is considerably cheaper than some alternatives that are similar in function. For example, at \$10,000 - \$15,000 per crossing, three to four RRFBs can be installed for the cost of one crossing with in-roadway flashing warning lights.

Finally, the RRFB can be used where there may not be enough traffic to warrant traffic signals or stop signs, but where a concern over pedestrian crossing safety exists. There is currently an overhead pedestrian signal at 10th Street. Other possible locations for RRFBs along Lassen Avenue include: Apple Street (see page 33), Myrtle Avenue/4th Street (prior to roundabout, see page 28), and Huron Avenue. Due to the recent fatality at 11th Street, another RRFB may want to be considered near the City Hall and Family Dollar.



A rectangular rapid-flash beacon from the driver's point of view. Source: MUTCD, FHWA.

Proposed Roadway Design Cross Sections

Nelson\Nygaard has developed proposed cross sections (roadway designs) for several streets in Huron. These sections were designed to create streets that are safe and convenient for all street users. Walking and biking are common means of getting around town, with many intra-city trips being possible without the use of a car. On many streets, there is adequate space available to provide quality facilities for these users. A large number of streets, even in residential neighborhoods, are very wide with no defined lanes. The lack of markings tends to induce motorists to drive faster and makes the streets less safe for pedestrians and cyclists. However, the excess width allows for many quick and inexpensive improvements merely by using markings to reallocate roadway space, for example by painting bike lanes. For Lassen Avenue, the proposed changes are more comprehensive, including removal of travel lanes, but as described previously there would still be enough capacity for anticipated future traffic volumes.

The proposed layout for each of the street sections in Figure 4 (next page) are shown in this chapter. Greater detail is provided here for the central retail section of Lassen Avenue because of its importance as the commercial and geographic center of the community, and M Street as it represents an



Figure 4. Locations of major recommendations along Lassen Avenue, including front-out angled parking in the core retail area south of Railroad Avenue.

important piece of the proposed bicycle network, connecting the northern neighborhoods to Huron Middle School and the southern neighborhoods to Huron Elementary School.

Lassen Avenue

Parallel parking is permitted along the majority of Lassen Avenue. The widest section of the street is 86 feet wide between Myrtle Avenue and Huron Avenue; the existing striping is as shown in Figure 6. Low parking occupancy rates combined with the lack of markings makes the outside travel lane appear very wide from a motorist's perspective. The width of Lassen Avenue is challenging for pedestrians to cross, is out of character with a small town main street, and encourages high vehicle speeds. While the width of Lassen varies from 68 feet to 86 feet, the design is consistent throughout, as shown in Figure 6 — five lanes with no bicycle lanes and few pedestrian or bicycle amenities.

As discussed, one lane in each direction, plus a center-turn lane, is sufficient for the volume of traffic forecasted by Caltrans in 2035, even at the summer peak. A “road diet” or lane reduction that would reduce Lassen from five lanes to three would better serve the many pedestrians, cyclists and school children in the community, while still

providing sufficient capacity for local and through traffic and agricultural transport.

Lassen Avenue's broad width allows for many possible design options. The continued presence of the central median is important as it greatly increases safety by providing a space for turning vehicles to wait outside of the traffic flow, and it also allows the planted medians to be retained as they make the central business blocks more visually attractive. Retaining the medians also allows for pedestrians to cross in two stages with a central refuge area, as shown in Figure 35 (page 33). This configuration allows pedestrians to focus on traffic in only one direction at a time, which is both safer and generally leads to less waiting for a gap in traffic long enough to cross.

The main difference between proposed section 86-1 and proposed section 86-2 (Figures 13 and 14, page 20) is the way in which parking is marked. Section 86-1 uses front-out angle parking, while section 86-2 uses parallel parking. Front-out angle parking would increase the amount of on-street parking spaces compared to parallel parking, and is considered safer than the more commonly seen front-in angle parking. (Front-out angle parking is discussed in greater detail later). This section would

Section Name	Where	Curb-to-Curb Width
68-1	Lassen between Palmer and 12th	69'
80-1	Lassen between 12th and 11th	80'
70-1	Lassen between 11th and Railroad	70'
86-1	Lassen between Railroad and Myrtle	86'
86-2	Lassen between Railroad and Myrtle – alternate	86'
81-1	Lassen between Myrtle and Cherry	81'
81-2	Lassen between Cherry and Tornado	81'

Figure 5. Lassen Avenue Street Sections. Source: Nelson\Nygaard.

be most suitable between Myrtle and Huron, which is the retail center of Huron and experiences the highest parking demand. However, since parking demand overall appears to be relatively low, the additional parking spaces may not be needed, and this cross section risks looking very wide with empty parking spaces on each side. As such, it is recommended that planters occupy a certain number of stalls to visually narrow the street and provide more foliage. Section 86-2 keeps parallel parking, like today, but adds a buffered bike lane and planting

strip. The planting strip provides visual interest and makes walking more comfortable by adding a buffer between pedestrians and vehicles. Alternatively, the buffer could be substituted in places for a parklet instead of a planting strip. See below for a discussion of parklets.

The following proposed cross sections (roadway designs) run from north to south along Lassen Avenue and utilize existing road widths to reduce construction costs.

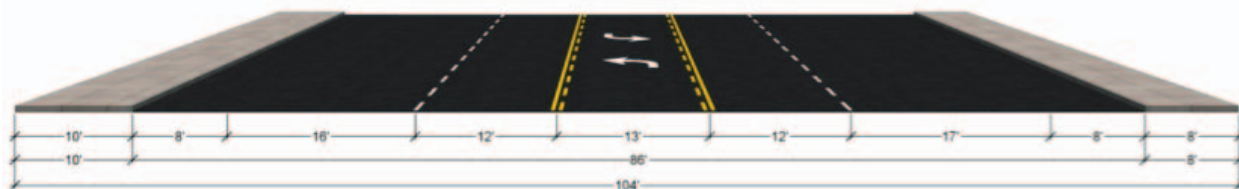


Figure 6. Lassen Existing Cross-section between Railroad and Myrtle.

Parklets

The recaptured space between the parking and sidewalks in Section 86-2 can vary based on the land use context and wishes of any adjacent merchants. It is shown as a planter strip, which would provide visual interest and increase pedestrian comfort by acting as a barrier to moving vehicles. However, the space could equally well be used as a “parklet” with outdoor seating for a café or restaurant or place for residents to gather.

Parklets are quickly gaining popularity in cities around the country. The idea originated in an annual event called Park(ing) Day that aims to re-imagine how public space is used. For instance, in 2005, 70 percent of public space in downtown San Francisco was dedicated to private vehicles. Since then both merchants and residents have realized that a parklet can be a great neighborhood amenity and also good for business.



Mojo Café Parklet, San Francisco. Source: Streetsblog San Francisco.

Lassen between Palmer and 12th

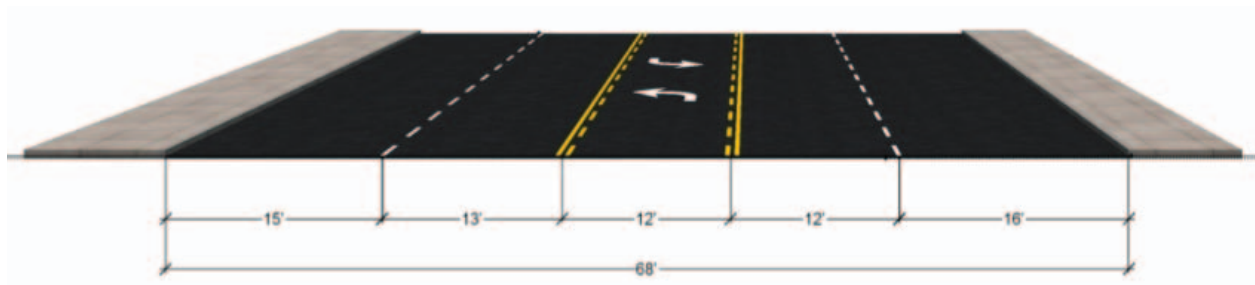


Figure 7. Lassen Existing Section 68-1.

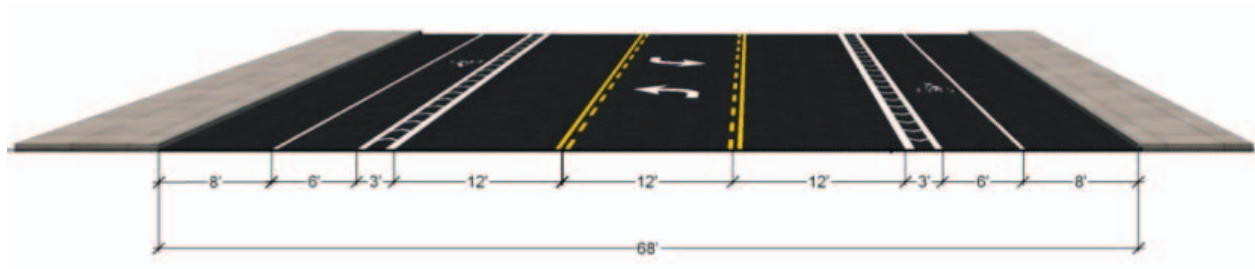


Figure 8. Lassen Proposed Section 68-1.

Lassen between 12th and 11th

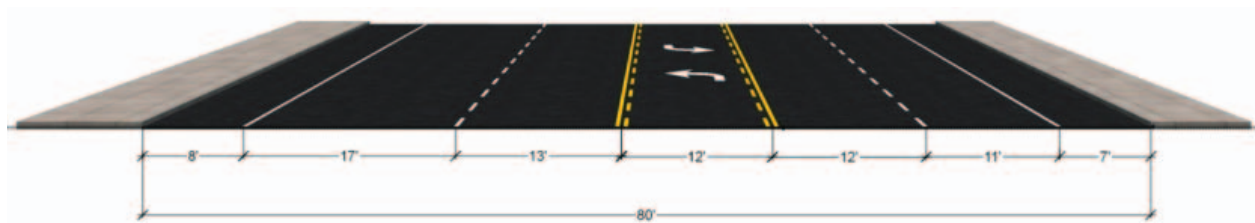


Figure 9. Lassen Existing Section 80-1.

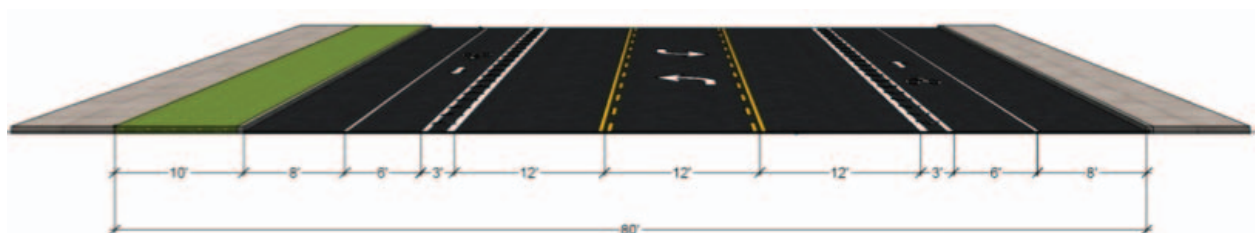


Figure 10. Lassen Proposed Section 80-1.

Lassen between 11th and Railroad

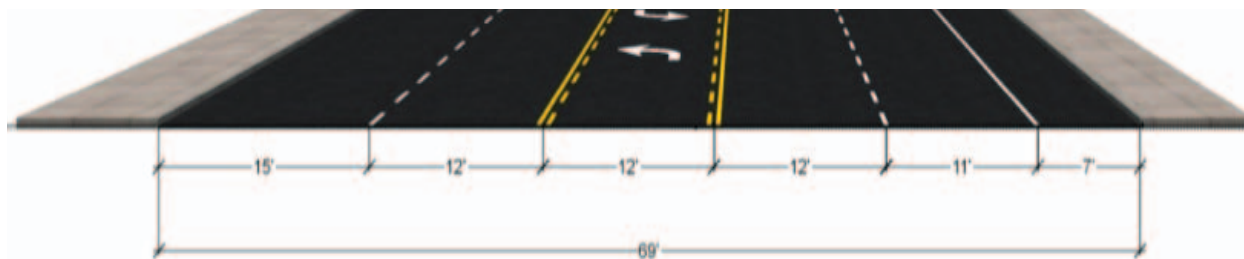


Figure 11. Lassen Existing Section 70-1.

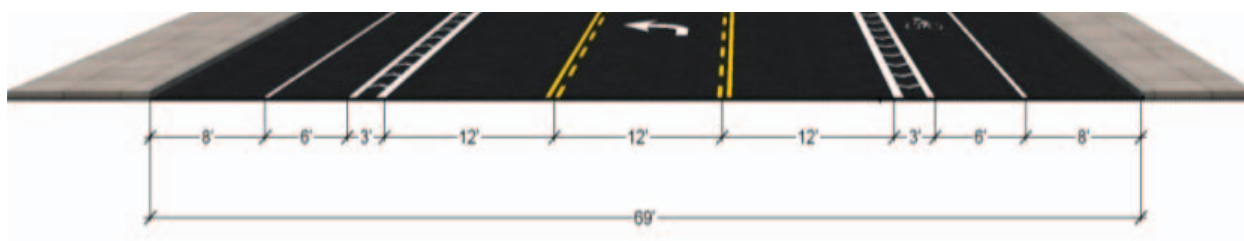


Figure 12. Lassen Proposed Section 70-1.

Lassen between Railroad and Myrtle

(See Figure 6 for existing section)

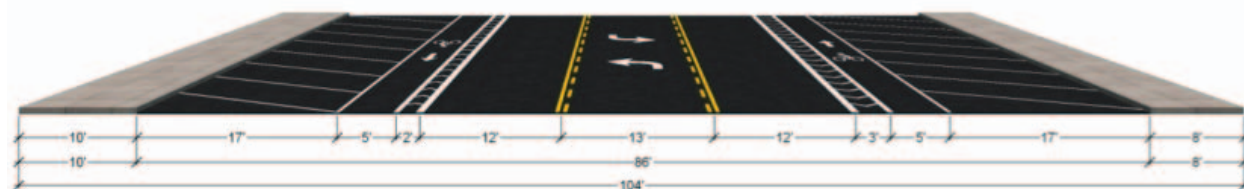


Figure 13. Lassen Proposed Section 86-1 with Front-Out Angle Parking.

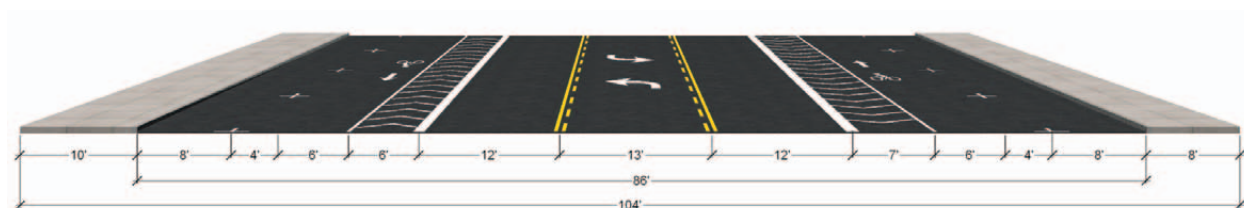


Figure 14. Lassen Optional Section 86-2 with Parallel Parking.

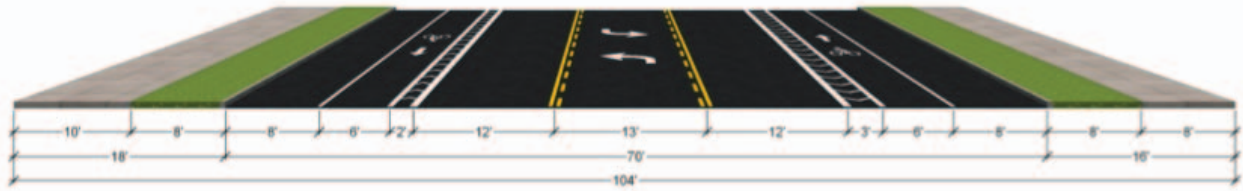


Figure 15. Lassen Optional Section 86-2 with Parallel Parking and planting strips.

Lassen between Myrtle and Cherry

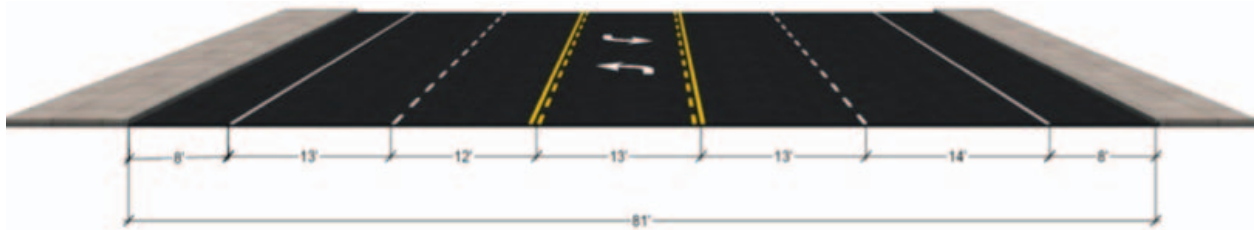


Figure 16. Lassen Existing Section 81-1.

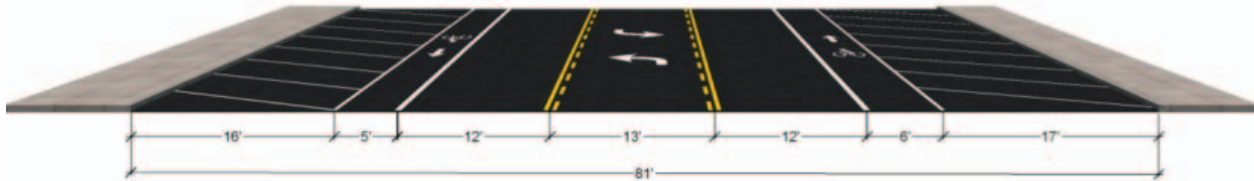


Figure 17. Lassen Proposed Section 81-1 with Front-Out Angle Parking.

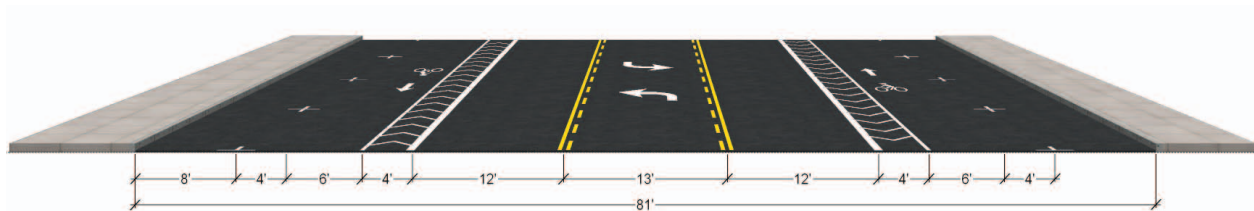


Figure 18. Lassen Optional Section 81-1 with Parallel Parking.

Lassen between Cherry and Tornado

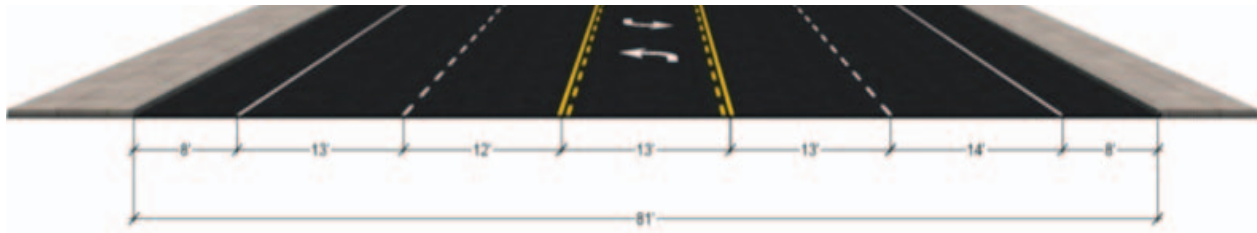


Figure 19. Lassen Existing Section 81-2.

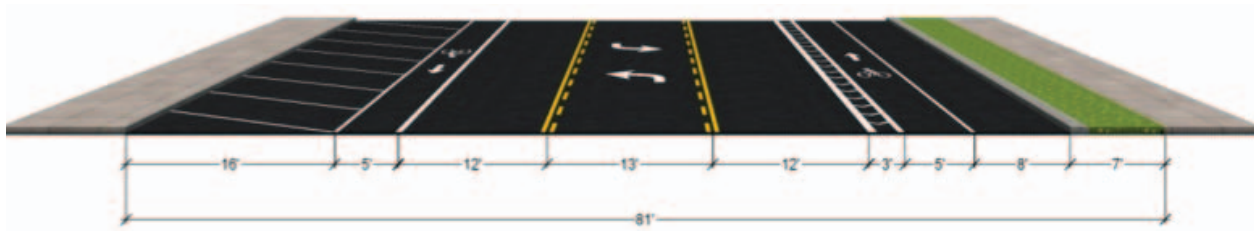


Figure 20. Lassen Proposed Section 81-2 with Front-Out Angle Parking on western side and planter strip on eastern side.

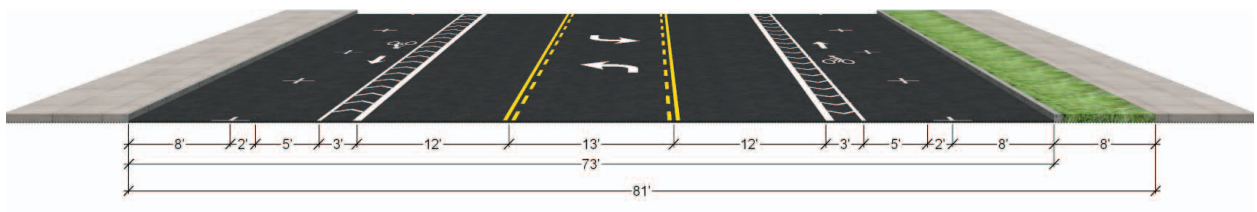


Figure 21. Lassen Optional Section 81-2 with Parallel Parking and planter strip on eastern side.



M Street heading north. This street serves as a connector between the elementary and middle schools.

M Street and other Side Streets

M Street is ideally situated to serve as a bicycle corridor between residential neighborhoods, the elementary school and middle school. Though it is a relatively low-traffic residential street that is already a reasonable bike route for confident adult bicyclists, it is important to create a facility that will serve less experienced riders and allow parents to feel comfortable letting their children ride to school. With the existing width, there is more than ample space to add bike lanes and a buffer strip between the bike lane and moving traffic.

M Street

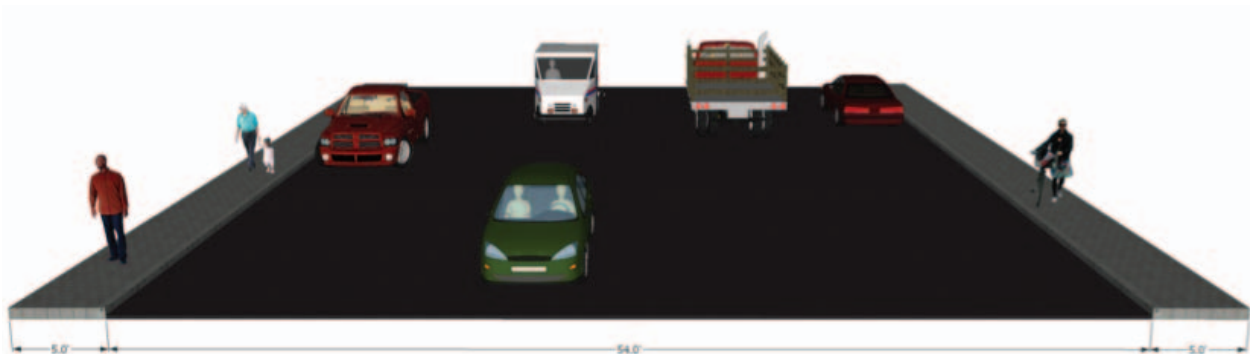


Figure 22. M Street Existing Cross-section.

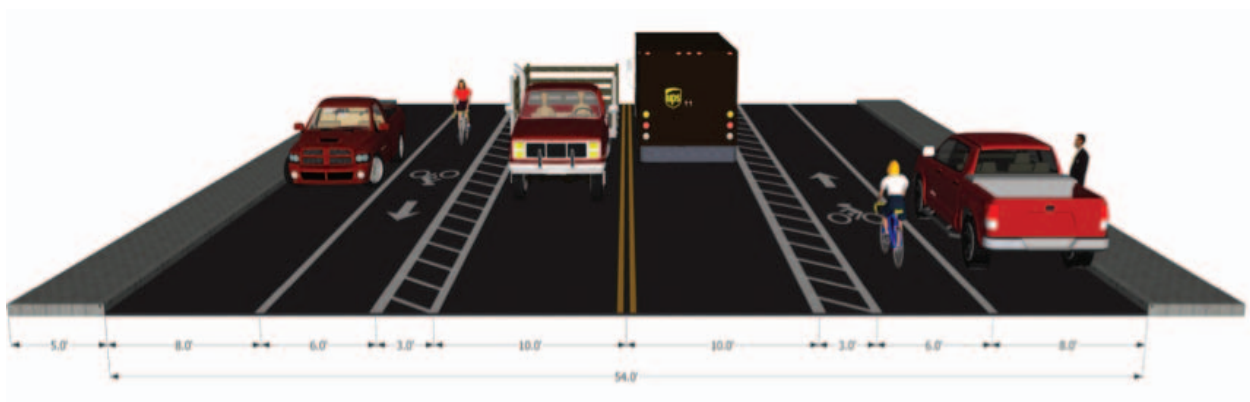


Figure 23. M Street Proposed Cross-section.

4th Street & Myrtle Avenue on Either Side of Lassen

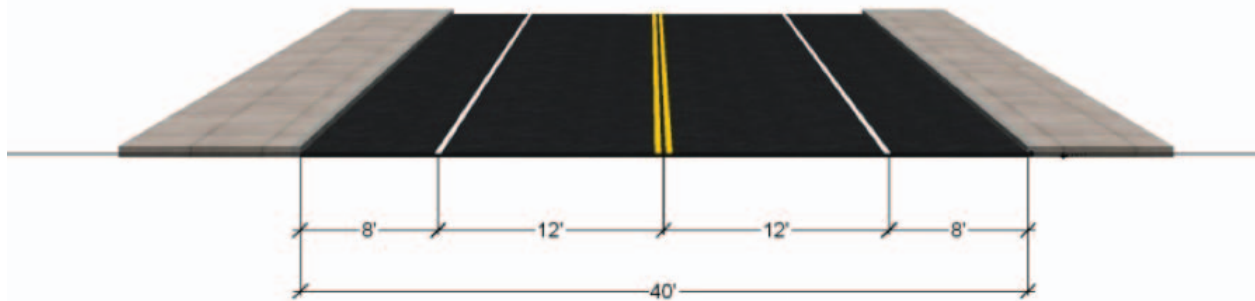


Figure 24. 4th and Myrtle Existing Section.

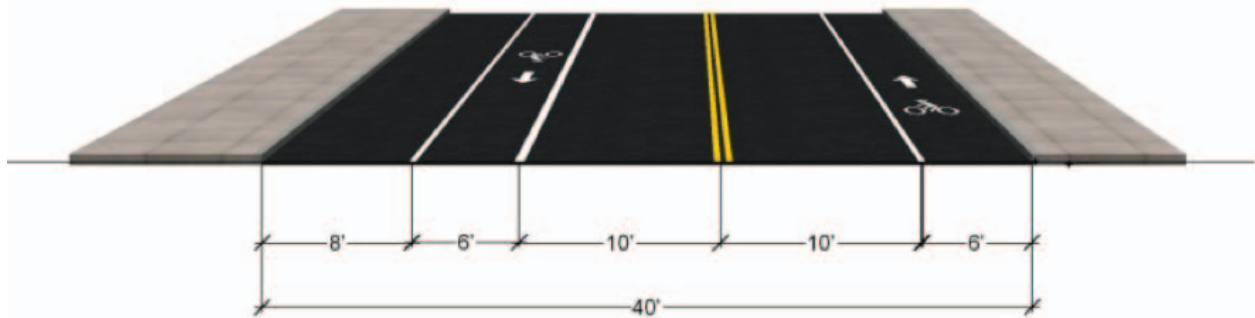


Figure 25. 4th and Myrtle Proposed Section. (Bike lanes are added and parking is removed on the south side of street.)



4th Street heading east in front of Huron Middle School.



Azteca Boulevard heading north.

Azteca Boulevard

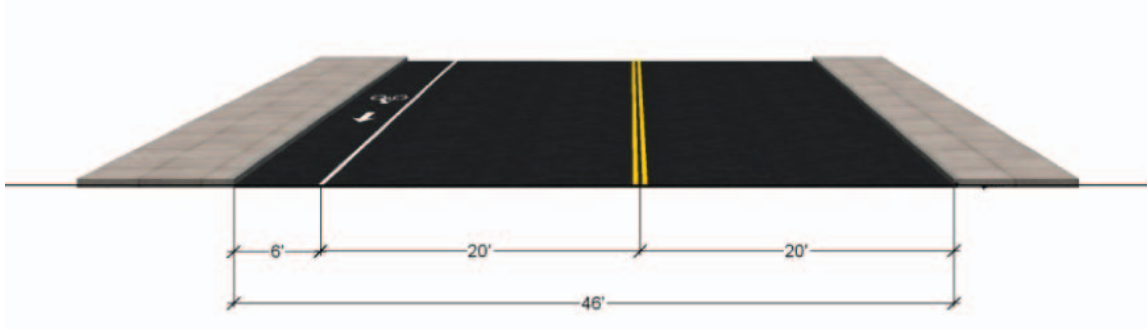


Figure 26. Azteca Existing Section — Northern Portion.

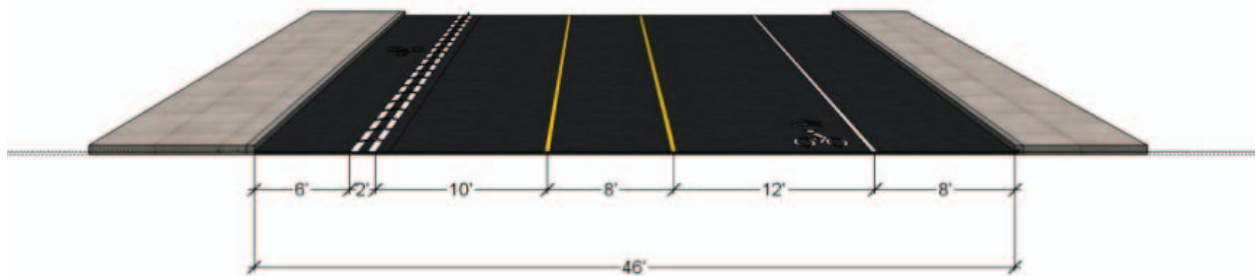


Figure 27. Azteca Proposed Section — Northern Portion.

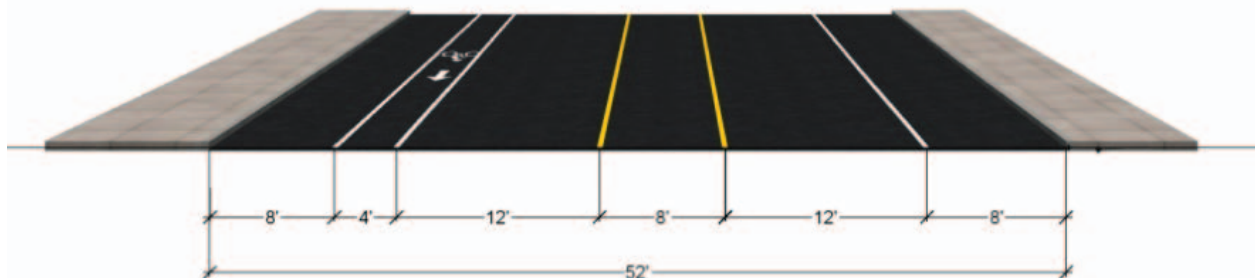


Figure 28. Azteca Existing Section — Southern Portion.

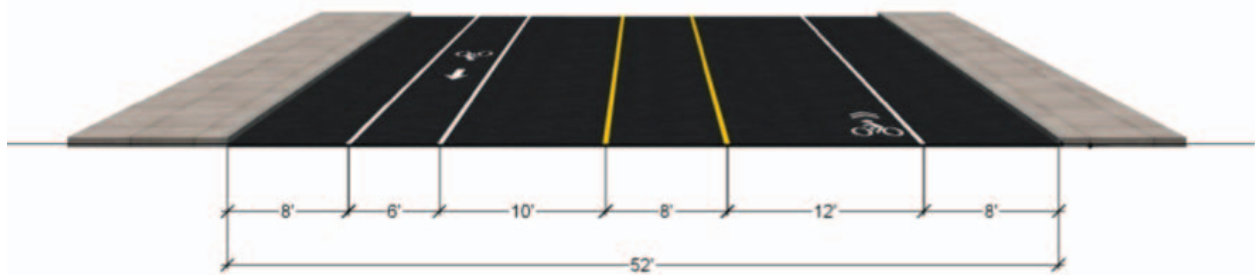


Figure 29. Azteca Proposed Section — Northern Portion.

11th Street from Lassen Avenue to O Street

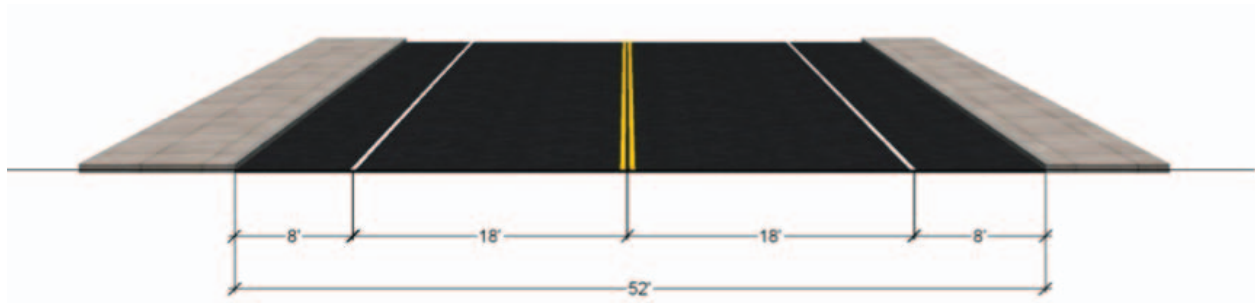


Figure 30. 11th Street Existing Section.

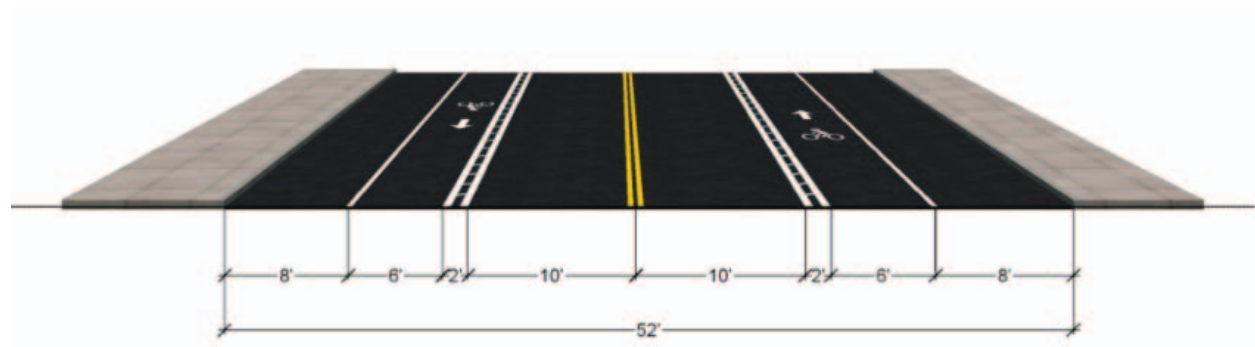


Figure 31. 11th Street Proposed Section.

Los Angeles Street and Apple Street Intersection

As mentioned previously in the section on Traffic Collisions (page 14), this intersection was listed as the secondary road with the most collisions according to SWITRS data for the period looked at by the design team. The wide streets and skewed alignment of Los Angeles and Apple Streets create a large turning radius on the southeast corner of the intersection that can encourage drivers to travel faster than they should. The City should

install a curb extension on the southeast corner of this intersection, to help re-align the southern approach on Los Angeles Street. This will help narrow the street-way and encourage drivers to slow down. A curb extension will also shorten the crossing distance for pedestrians wishing to cross Apple Street and reduce their exposure to cars. Stop signs should then be installed on the Los Angeles Street approaches.

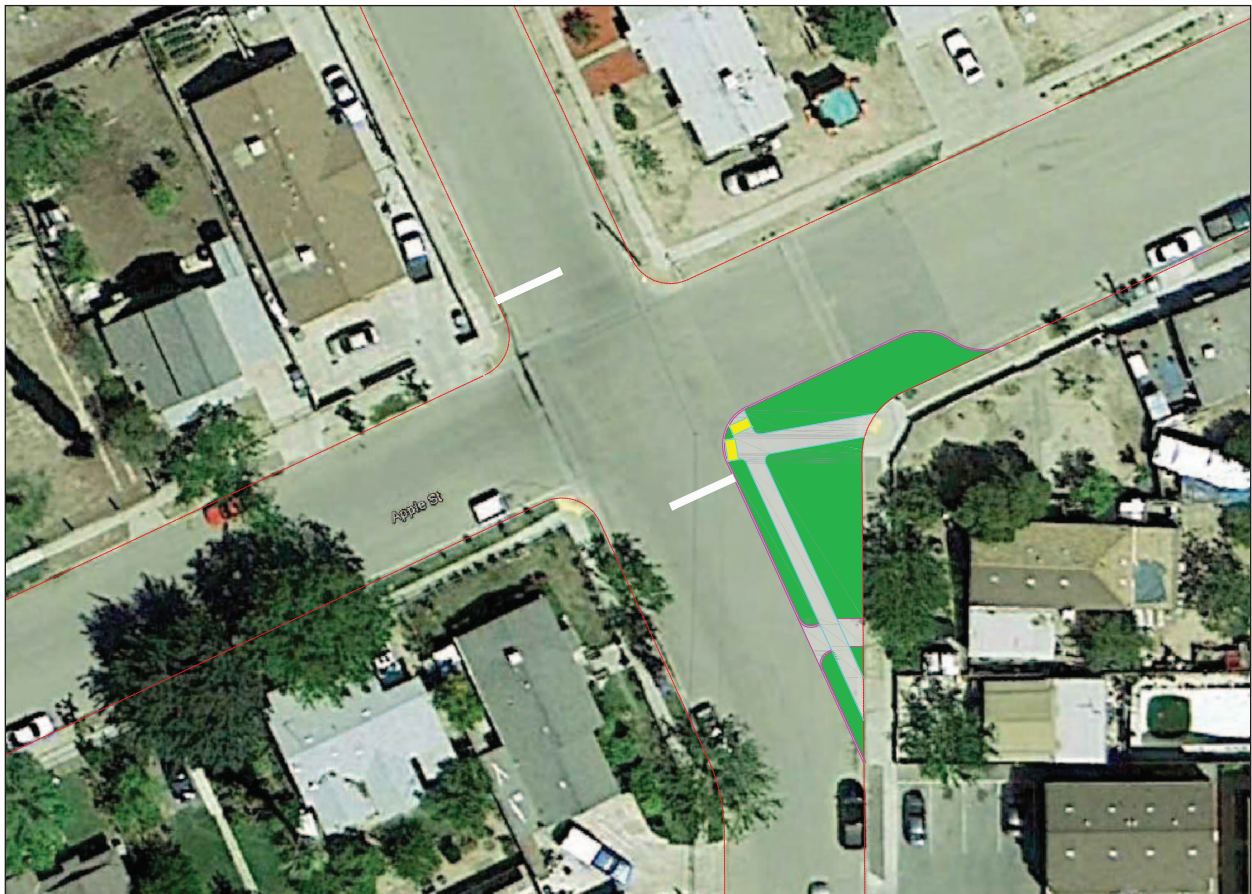


Figure 32. Diagram of curb extension at intersection of Los Angeles and Apple Streets with sidewalks and stop lines. (Conceptual – Not For Construction) Source: Nelson\Nygaard.

Roundabouts

Benefits

In general, roundabouts lower emissions, reduce congestion, and reduce both the number and severity of crashes. Roundabouts also serve as excellent gateways to cities because traffic must slow as it negotiates the intersection, and they provide significant opportunities for landscaping both along the medians approaching the roundabouts and in the central island. A roundabout at Palmer Avenue could serve as a “gateway” to Huron, clearly defining the point where the character of the roadway changes from rural highway to a commercial-oriented location.

In addition, pedestrians experience almost no delay at roundabouts as they do not need to wait for traffic signals, and the slow vehicle speeds at roundabouts encourage drivers to yield to pedestrians. Roundabouts are also safer for pedestrians than signalized intersections as well as two-way stop controls.

A correctly designed, modern roundabout with a mountable truck apron presents no problems to large commercial vehicles, such as the many agricultural vehicles and heavy trucks that pass through Huron.

Trade-offs

Although installing roundabouts provides several benefits, there are also trade-offs to consider.

- Roundabouts require slight diversions of pedestrian pathways to crossings setback from the intersection.
- Capital costs can be significant and it may require more right-of-way than the current intersections.
- Bicycle lanes are not carried through the roundabout, so bicyclists will need to merge with other traffic. However, motor vehicle speeds through roundabouts are compatible with bicycle speeds.



A roundabout with coordinated landscaping is an ideal gateway.



Roundabouts can be designed to accommodate large vehicles, such as the various agricultural equipment which use Lassen Avenue.

Roundabout Locations

Roundabouts should be considered at two locations in Huron — Lassen Avenue at 4th Street/Myrtle Avenue, and Lassen Avenue at Palmer Avenue. In both locations, they would improve the existing intersections by calming traffic and providing safe pedestrian crossings, while still being able to accommodate the projected volumes of traffic.

At the intersection of Lassen Avenue and Palmer Avenue, there is adequate available space to introduce a roundabout and although a small amount of private land would be needed at each corner, no buildings would be affected. Currently, the western exit is shown as a stub (see Figure 33), as there is no paved road, but a full entrance could be designed if needed in the future. A roundabout at this location would also help to serve as a gateway at the northern end of the City.



Figure 33. Roundabout design at Lassen Avenue and Palmer Avenue. (Conceptual – Not For Construction) Source: Nelson\Nygaard.

Designing a roundabout for the Lassen Avenue and Myrtle Avenue/4th Street intersection is slightly more challenging due to the offset between the two streets. However, by redirecting Myrtle Avenue so that it approaches Lassen Avenue at right angles, the offset would be small enough to make a feasible design. This would result in the empty lot between Myrtle Avenue, Lassen Avenue and Panaderia Rodriguez mostly becoming consolidated into a newly reconfigured Myrtle Avenue, and the existing alignment of Myrtle Avenue would then become available for development.

The community has previously pursued a traffic signal in Lassen Avenue and Myrtle Avenue/4th Street intersection but has been unable to meet Caltrans signal warrants.

In the future, a third roundabout could be considered at the intersection of Lassen Avenue and Tornado Avenue, when significant development occurs in the southern portion of the city (e.g. a potential residential neighborhood and high school south of Tornado Avenue). Currently the volume of traffic on Tornado Avenue is very low.

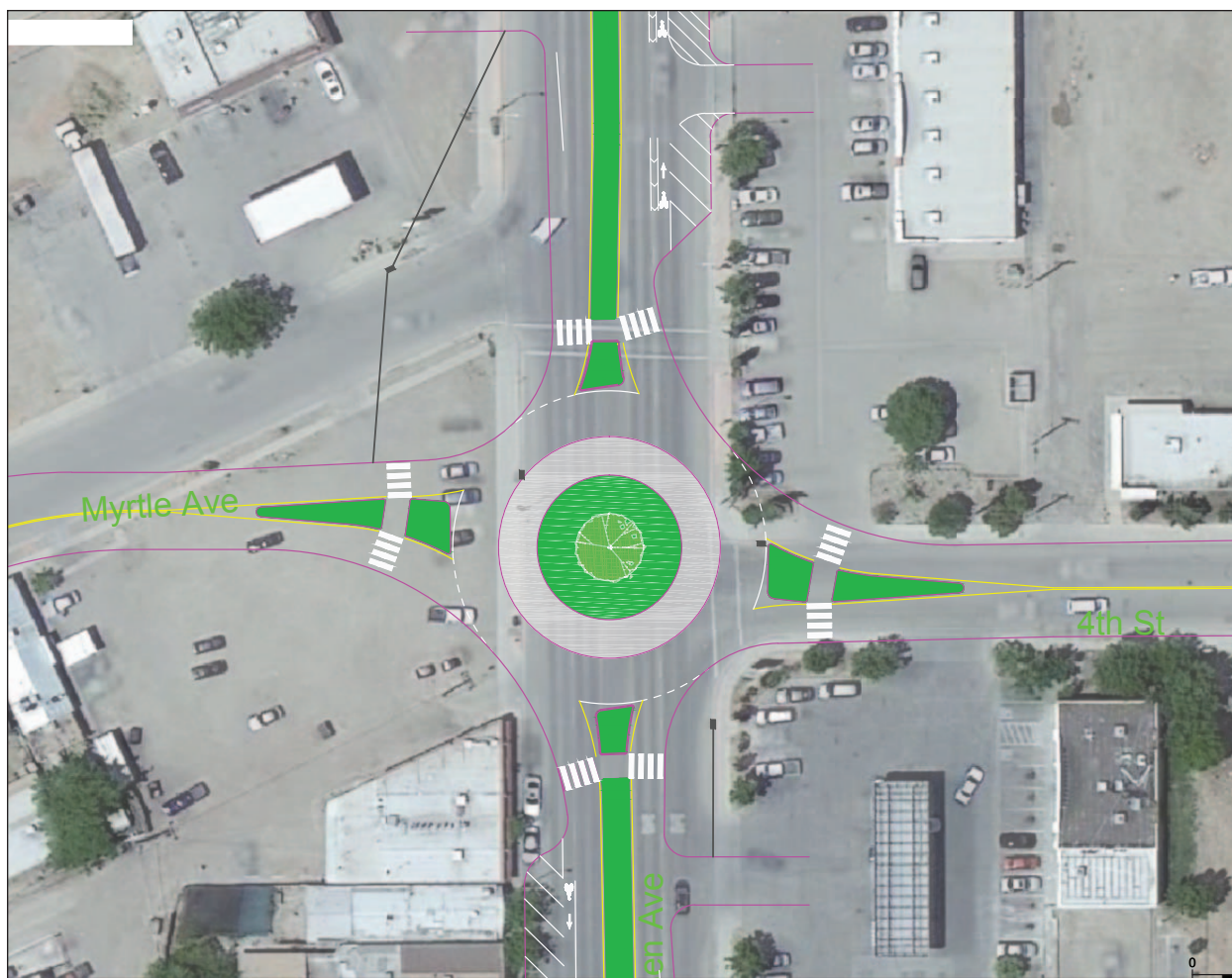


Figure 34. Roundabout design for Lassen Avenue at Myrtle Avenue/4th Street. (Conceptual – Not For Construction) Source: Nelson\Nygaard.

Alternative Strategy for Roundabouts

An alternative strategy would involve construction of the roundabout recommended at Lassen Avenue and Myrtle Avenue/Fourth Street, and then construct a second roundabout at Lassen Avenue and Tornado Avenue. This strategy would emphasize pedestrian movement in the lower quarter of the City of Huron. Given the general layout of the streets and destination draws in the southern portion of the City, this strategy could serve a significant portion of the population residing there that rely on walking.

A continuous raised median island could then be constructed to link these two roundabouts. The locations of the roundabouts could counter the loss of the left-turn lanes in the lower section of Lassen Avenue. The continuous raised median island would assist pedestrian movement across Lassen Avenue. The two roundabouts situated in a relative close proximity to each other would also likely calm traffic. A marked crosswalk with light enhancements could probably be situated mid-way between the two roundabouts (near Cherry Avenue intersection).



Figure 35. Illustration of roundabout at Myrtle Avenue/4th Street with possible adjoining plaza areas and trees.

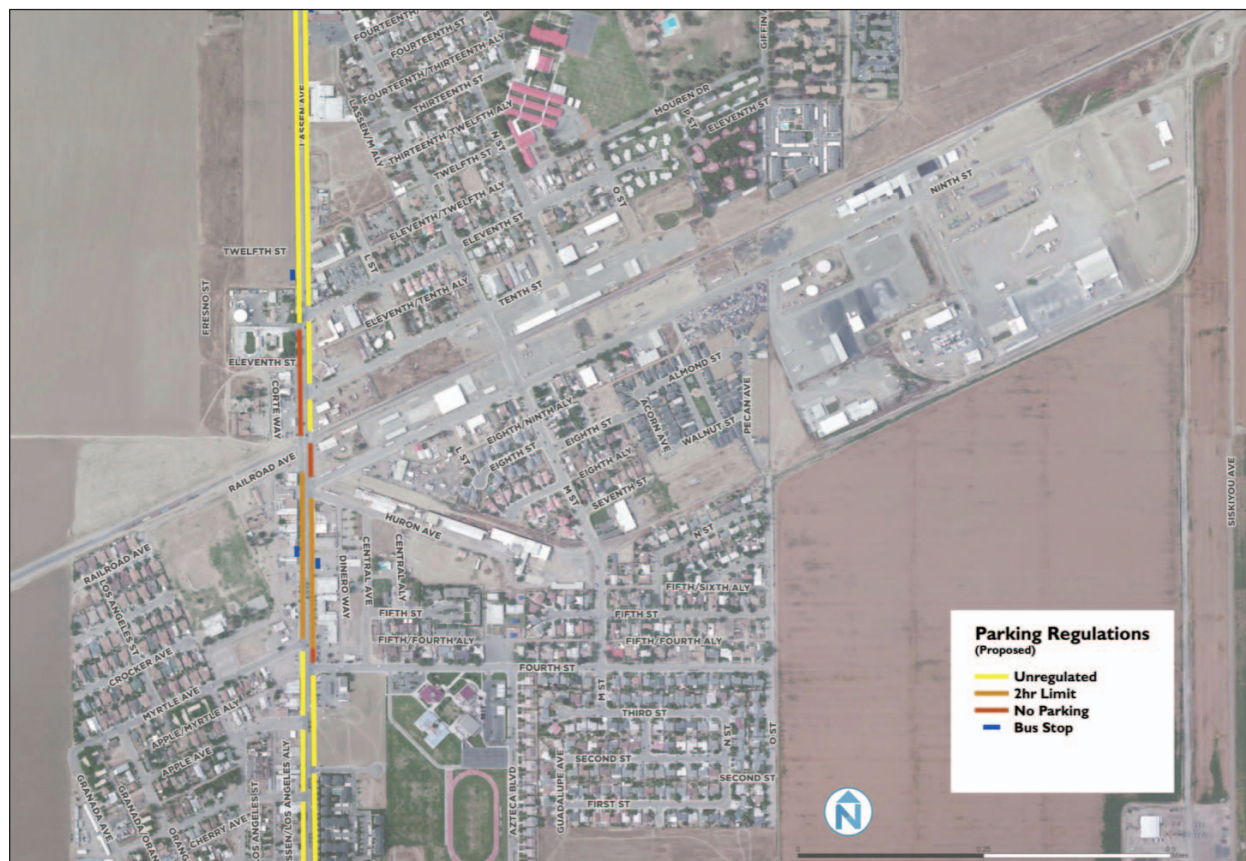


Figure 36. Proposed parking regulations along Lassen Avenue.

PARKING

With few exceptions, parallel parking is permitted on both sides of Lassen Avenue for the entire length of the street through Huron. There is no parking along the west curb of Lassen Avenue between Railroad Avenue and 11th Street. Since most commercial properties in the central and northern half of town have dedicated off-street parking, the on-street parking is not heavily used. South of Myrtle/4th there are more businesses that predate off-street parking requirements, and on-street parking appears to be more frequently used. While no formal parking survey was carried out, on-street parking appeared to be underutilized during the design fair, and community input did not indicate that high parking occupancy is a concern.

Parking Regulations

Most on-street parking on Lassen Avenue is currently unregulated. There are two areas with 2-hour parking — the commercial area between the railroad and Myrtle Avenue, and a 200-foot segment on the eastern side of Lassen Avenue south of the Porvenir Estate entrance.

The 2-hour parking limitation is an effective way of promoting vehicle “turnover” to manage parking in the commercial area, which has moderate parking demand, but appears unnecessary on the short southern section. It is recommended that the 2-hour time limit be removed on the 200-foot segment described above. Regulations for the rest of Lassen Avenue appear to be well suited to the conditions given that on-street parking does not experience high occupancy rates.



Explanatory signage is important to encourage proper parking.



Front-out angled parking in Esparto on State Route 16.

Front-out Angle Parking

It is recommended that front-out angle parking (sometimes called “back-in angle parking” or “safety parking”) be implemented along Lassen Avenue in the main retail area on the southern-end of Huron, as indicated in Figures 13, 17 and 20. Front-in angled parking spaces take up more street width than parallel, curbside parking spaces, extending 15 to 17 feet into the street, compared to seven or eight feet for parallel spaces. Where there is room to provide them, however, they can substantially increase the supply of on-street parking. As can be seen in the cross-sections, it more fully utilizes the otherwise excessively wide right-of-way, and the visual narrowing of the street will help to calm through traffic.

Front-out angled parking, also sometimes called back-in or reverse angled parking, offers benefits over other parking largely for two reasons:

- *Improved visibility.* Pulling into traditional angled parking spaces is relatively simple and safe. However, backing out can be difficult and dangerous. Drivers must look back over their shoulders, across the back seat, and their views are often blocked by the car or truck parked next to them. It is often only after motorists have backed out part of the way into traffic that they can see oncoming traffic. This can be

especially risky for cyclists, who are both harder to see and more vulnerable in event of a crash. By contrast, back-in angled parking offers drivers clear views of traffic while both backing in and pulling out.

- *Orientation of trunks and open doors toward sidewalk.* When drivers and passengers get out of a vehicle parked in a traditional angled parking space, their doors open forward and they exit toward traffic. This can be dangerous for children getting out of the back seat. In a traditional angled parking space, trunks also face toward the street, and must be unloaded and unloaded next to moving traffic. In a back-in angled parking space, passengers exit the vehicle toward the sidewalk and trunks can be loaded and unloaded from the sidewalk.

There are disadvantages to front-out angled parking. One is that the back-in maneuver, while similar to parallel parking, is more challenging than pulling in. A second disadvantage is that tailpipes are pointed toward sidewalks rather than the street.

Further discussions will be needed with Caltrans, so parallel parking options are provided in Figures 14, 15, 18 and 21. For more information on front-out angle parking see Appendix C.



Figure 37. Sidewalk and drainage existing conditions.

PEDESTRIANS

Walking is a popular means of making trips within Huron. In the course of the design fair, the design team observed many people, young and old, walking throughout town for many different purposes — going to work and school, buying groceries, and going to the park or the post office. With walking clearly being important to so many residents, the walking network should be treated with equal importance. “Walking network” implies more than just sidewalks — it means full connectivity and access for pedestrians, including improved street

crossings. Pedestrians should be able to reach their destinations in a comfortable and convenient way, without detours or needing to run across the road. The main recommended improvements are to complete the sidewalk network, add new enhanced pedestrian crossings where needed, and enhance crossings with features such as raised median islands, high-visibility markings, advance yield lines, and curb extensions to reduce crossing distances.



Mothers navigate substandard sidewalks on Lassen Avenue with strollers.



Some portions of sidewalks along Lassen Avenue are inconsistent or have obstacles in the pathway.

Completing the Sidewalk Network

There are some notable gaps in the sidewalk network. Between 9th and 10th Streets on the east side of Lassen Avenue there is no sidewalk at all, even though it is clearly an important pedestrian route. Between 11th and 12th Streets, again on the east side, there is a severely sub-standard sidewalk that is far narrower than design standards recommend. The design team observed elderly residents and parents with strollers struggling on this section. The entire west side of Lassen north of 12th Street lacks a sidewalk, though this is not particularly problematic at present because of the lack of adjacent development.

Some blocks that do have sidewalks are still not comfortable pedestrian environments. For example, the entire length between Corte Way and the railroad tracks is in effect a giant curb cut – instead of having one or two defined locations for vehicle access, vehicles can enter and leave at any point. This makes conditions more challenging for all users, motorists and pedestrians alike, and should be remedied.

Areas with both large amounts of foot traffic and large numbers of vehicles should be prioritized for improvements.

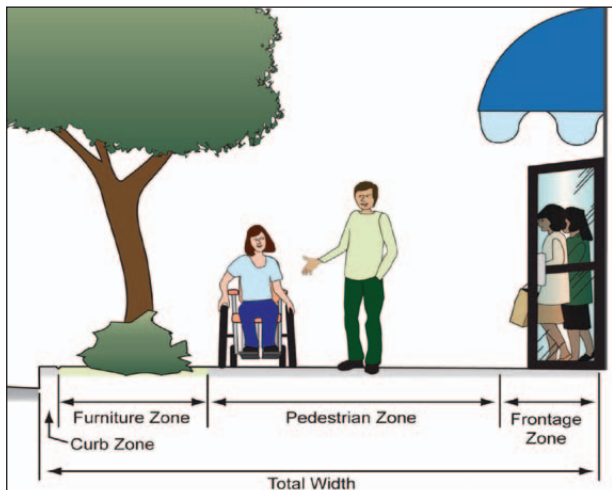


Figure 38. Comfortable pedestrian environments should contain the zones labelled in the figure to the right.



South of Corte Way on Lassen Avenue the sidewalk is missing an ADA compliant curb ramp and poles are in the pedestrian path.



There are portions along Lassen Avenue where sidewalks are nonexistent, such as at 9th Street.

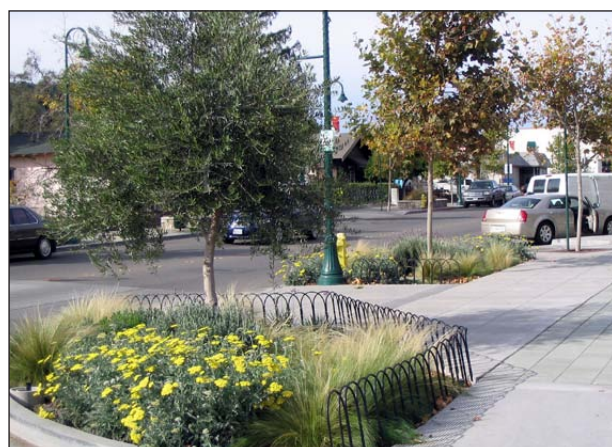
Curb Extensions

Curb extensions, also called bulb-outs, are very useful additions to the pedestrian realm. They improve pedestrian safety in several ways – primarily, the crossing distance is greatly reduced and so the time it takes to cross the road is decreased. Bulb-outs also visually narrow the street, give pedestrians a highly visible place to wait, and improve driver sight lines at intersections.

Making changes to the curb line can be challenging in places, particularly where there are existing

drainage facilities. However, even where there are storm drains, it is possible to add curb extensions by designing so that water still flows to the existing drain. For example, a water pipe can be embedded in the curb extension, or the extension can be built like an “island” that may or may not be connected to the original sidewalk by a plate over the gutter.

Curb extensions should be utilized as improvements along Lassen Avenue are made.



Example of a curb extension connected to the sidewalk.



Example of a curb extension with detached curbs.



Crosswalk cut through a median provides a pedestrian refuge.

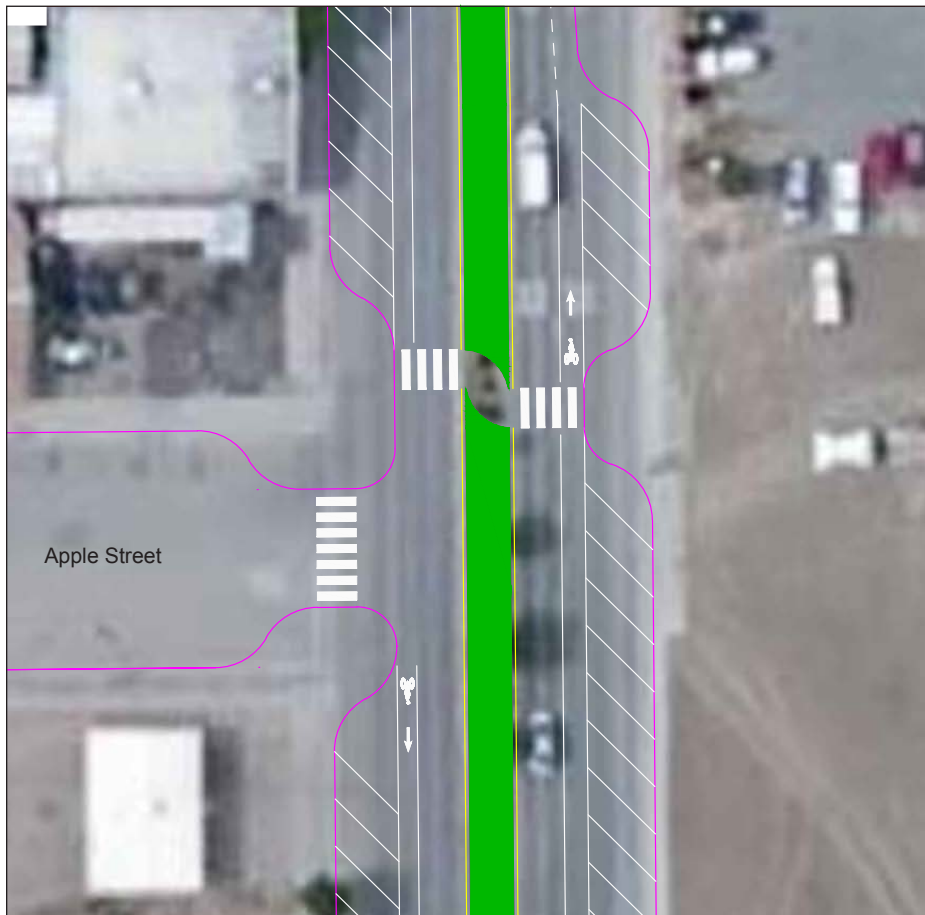


Figure 39. Proposed pedestrian crossing through median with bulb-outs at Lassen Avenue and Apple Street. (Conceptual – Not For Construction) Source: Nelson\Nygaard.



This single ramp at Myrtle Avenue does not align pedestrians with the existing crosswalk.

Universally Accessible Curb Ramps

To improve mobility for all, curb ramps with detectable warning strips (truncated domes) should be installed at every intersection. Where feasible, two per corner at right angles to the curb should be encouraged, rather than one “diagonal” curb ramp per corner (acceptable but not recommended). Curb ramp slopes must be perpendicular to any grade break, and wherever possible should align with the crosswalks for the benefit of the visually impaired.

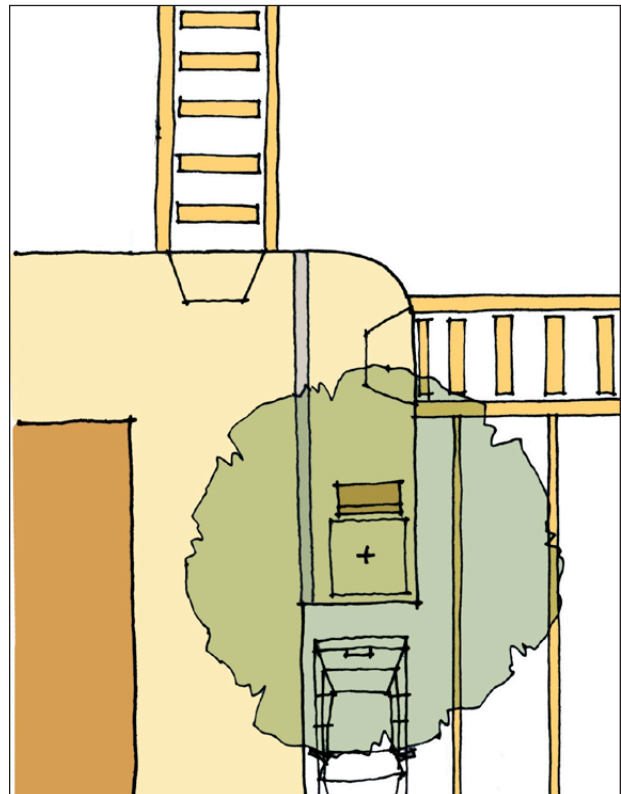


Figure 40. Two curb ramps lead pedestrians in their direction of travel, rather than at a curb corner with one ramp that could be cut short by an inattentive vehicle. Source: Opticos Design.

High Visibility Crosswalks

Most marked crosswalks in Huron are of the standard type, with two parallel stripes across the street at right angles to the direction of travel. While these clearly define where pedestrians should cross, the stripes tend to wear quickly and can be difficult for motorists to see even when new.

High visibility crosswalks usually use “continental” striping, with a series of rectangles across the street, parallel to the direction of travel. These are much less prone to wear, and are far easier for motorists to see.

As improvements are made to Lassen Avenue, high-visibility crosswalks should be used at existing crossings, and any other locations where there is high pedestrian traffic.



High-visibility longitudinal bars and signage draw attention to a mid-block crossing.

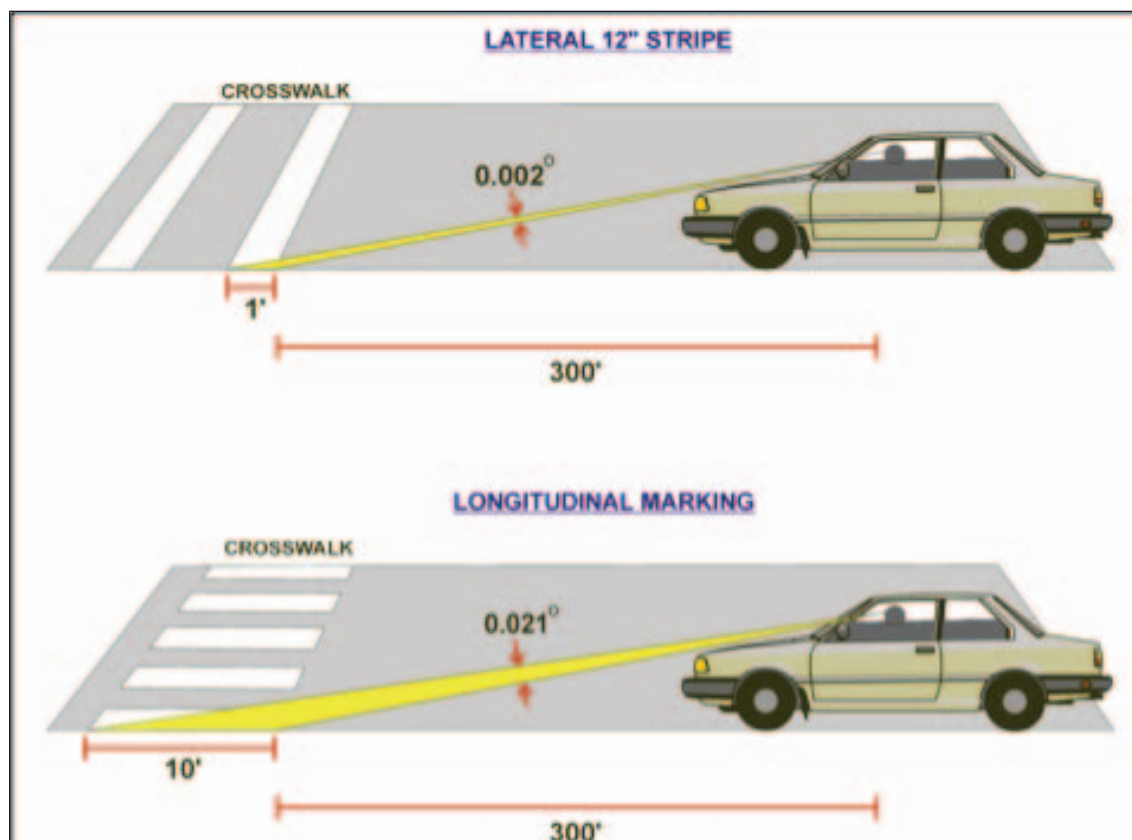


Figure 41. High visibility crosswalks. Comparison of the viewing angles of transverse and longitudinal crosswalk markings. Source: Rock Miller, via FHWA.

Lighting and Trash Receptacles

Lighting can enhance both actual and perceived safety. Lighting along Lassen Avenue should be at a pedestrian scale (rather than standard, auto-oriented “cobra” streetlights, which tend to cast irregular yellow-tinted “pools” of light onto roadways), but can be either direct (installed at the stop, as part of the stop) or indirect (from adjacent lamps or lights attached to buildings).

If placed near a transit stop, lights should illuminate the entire front “half” of a stop (illuminating those boarding and exiting from both front and back doors). High-quality pedestrian-scale lighting can also serve to ensure that riders are visible to operators, and are not inadvertently passed up. “Pass-ups” can further be reduced using “stop request” identification lights attached to flag signs or shelters that waiting passengers can activate to signal their presence.

Trash receptacles also have a significant psychological impact, in preserving an orderly and clean pedestrian and transit stop environment. Receptacles also need to be emptied on a regular basis. Scattered trash sends a message to potential users that the public space and transit stops are not valued.



Example of pedestrian scale lighting



Lighting along Lassen Avenue is characterized by the auto-oriented “cobra” streetlights.



Pedestrian scale lighting can enhance the streetscape.

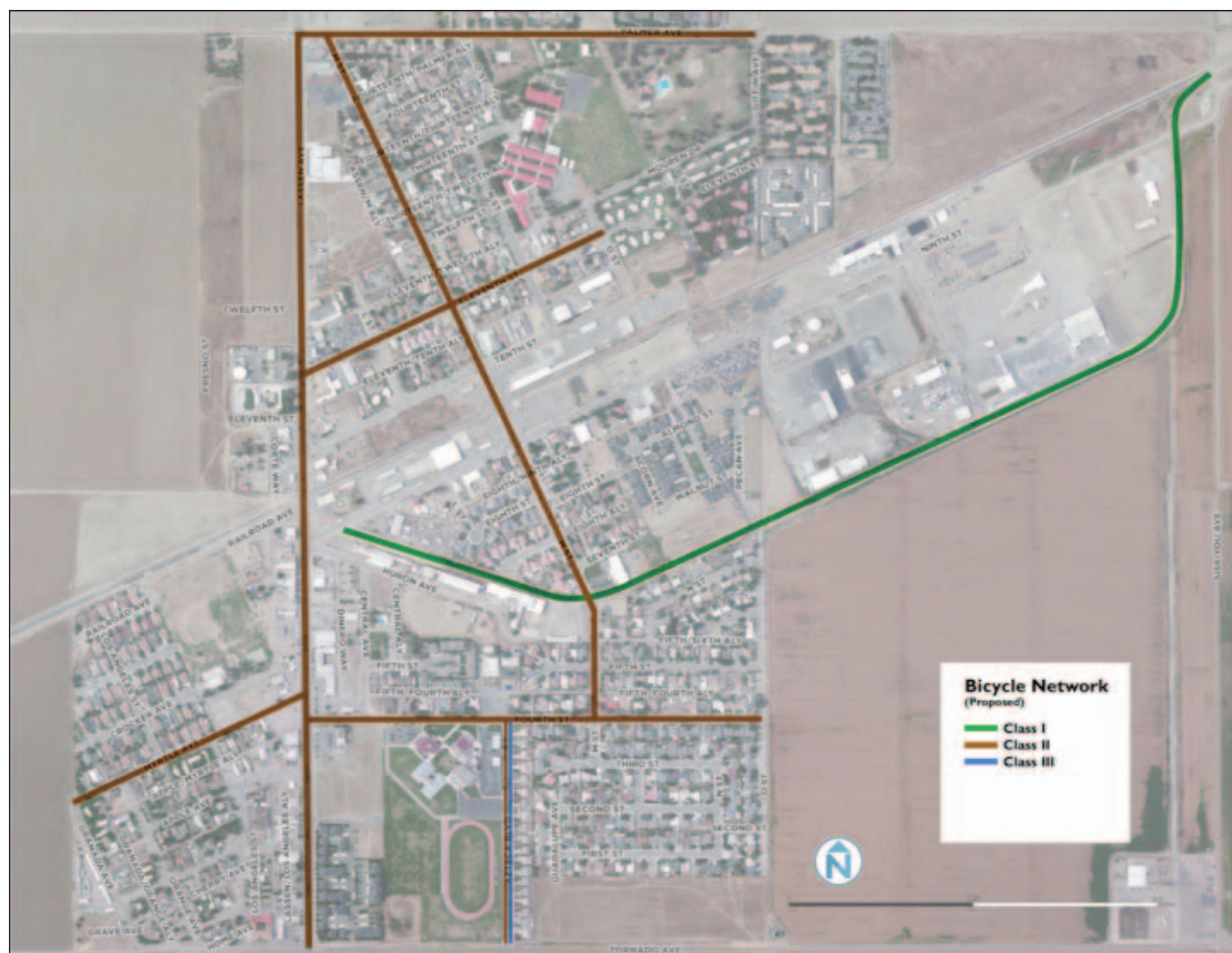


Figure 42. Proposed bicycle network for Huron.

BICYCLE NETWORK

Connectivity

Azteca Boulevard currently has Huron's only bike lane. Connectivity through the residential neighborhoods is generally good for cyclists due to the low motor vehicle volumes. Lassen Avenue can be a significant barrier to cyclists which limits it as a north-south connection for bicyclists and the usefulness of bicycles as transportation.

Providing a complete network of bicycle-friendly streets is crucial in order to encourage those who

are interested in bicycling but are concerned about safety, particularly for parents who would like to allow their children to ride to school.

Given Huron's relatively dense development, there are few options for car-free trails. One possibility is the unused rail right-of-way that stretches from the intersection of Lassen Avenue/9th Street/Huron Avenue (parallel to Huron Avenue but north of the row of warehouses) and extends to the south of the residential and industrial developments on the east side of town out to Siskiyou and Palmer Avenues.



Bicycle lanes provide a buffer for cyclists between traffic and parked cars.



Residents ride bicycles along Lassen Avenue, but will use the sidewalks if they don't feel safe riding on Lassen Avenue.

Even if the trail were only developed between O Street and Lassen Avenue, it would provide a pleasant and fast bike connection between the eastern neighborhoods and downtown. See the proposed bike network map in Figure 38 (previous page).

Bike Lanes

Bike lanes can greatly improve safety and comfort where space is available on streets with low to moderate speeds and traffic volumes. In addition to providing cyclists with a dedicated space to ride in, they signal that bikes are a welcome and legitimate means of transportation, remind motorists to expect and look out for cyclists, and help visually narrow overly-wide streets and thus help calm traffic.

Class II bike lanes should be added on Lassen Avenue and on important connecting routes through the neighborhoods on either side of Lassen (see proposed bike network map in Figure 38). Bike lanes are essential on Lassen Avenue as it is the only continuous north-south corridor through Huron, and essential as a link between the neighborhoods on the east and west sides of the highway. Connecting routes through the neighborhoods were chosen for directness in linking important community destinations like schools and community centers with residential areas.

Buffers

Painted buffers between the bike lane and travel lanes are shown in the proposed cross sections for Lassen Avenue and M Street (see page 22), and in many of the other cross sections. Buffers typically serve one of two purposes for bike lanes — either they provide additional space between on-street parking and the bike lane, or they provide additional space between the travel lane and the bike lane. In Huron, the design team's assessment is that the additional buffer between cyclists and motorized traffic is more useful. Accidents where cyclists are hit from behind are relatively rare, but with the high percentage of heavy goods vehicles, a few feet of extra space will greatly increase comfort and the feeling of safety. In areas with high on-street parking occupancy, cyclists are more likely to be “doored” (when someone in a parked vehicle opens their door suddenly into the path of a cyclist) and hence additional space between the bike lane and car doors is needed, but given the low parking occupancy this is unlikely to be a frequent problem in Huron.



Inverted U-rack. Source: John Luton, Flickr



The City has installed bike racks in the downtown area.

Bicycle Parking

For bicycles to truly be useful as transportation, there must be secure parking at a variety of destinations such as stores, schools and workplaces. High-quality bicycle racks are very low cost compared to building and maintaining car parking, and are visible symbols that bicycles are welcome.

The Association of Pedestrian and Bicycle Professionals provides a guide to bicycle parking . In brief:

- Bicycle racks should be placed as close as practical to the main entrances of buildings they serve.
- The ideal rack for short-term use is securely attached to the ground, supports the bicycle in at least two places, and permits the user to secure at least the frame and wheels to the rack. Many designs accomplish these goals, but the most common may be the “inverted u” design.

In addition, the guide provides information on long term secure storage (used for example at workplaces where the bicycle needs to be parked all day), and how to estimate the required number of racks.

The City has already installed some bike racks in the central business area. Continued coordination between the City and businesses may be required to install racks in future locations. In the central business area where stores front directly onto the sidewalk, which is public property, the City can simply install inverted u bike racks where it determines they will best serve cyclists without unduly inconveniencing other users (typically racks are installed near the curb, in line with street lights, signs, and parking meters). On properties where the building is set back from the sidewalk, the racks would ideally be near the building entrance, on private property.

During the public workshops, several children said they were unable to ride to school because their bikes would be stolen. Schools can address this problem by providing adequate bicycle parking (or better publicizing existing parking), and may also need to educate children on how to use bicycle parking properly.



Coalinga Transit serves the community.



Transport for agricultural workers.

TRANSIT

Fresno County Rural Transit Agency (FCRTA) has two routes that serve the community: Huron Transit, a local route between Coalinga and Huron; and Coalinga Transit, a regional route that passes through Huron on the way from Coalinga to Fresno. The local route has two daily departures in each direction — a late morning and midday run from Huron to Coalinga, and a midday and mid-afternoon run from Coalinga to Huron. The Fresno route leaves Huron in the morning and arrives around midday, returning mid-afternoon. These services are not aimed at commuters, but rather serve as a means for residents to reach social and medical services, and shopping trips that are not available in Huron. There was a previous effort by Fresno County to expand service hours through the Welfare to Work program, however the service was not utilized by enough passengers to meet minimum performance standards to continue the service.

In addition, surrounding farms provide private buses that transport agricultural workers from downtown Huron to agricultural areas surrounding the city. There are also vanpooling services available to residents aimed at commuters and farm laborers.

Stops/Amenities

The main transit stop is at the curb near West America Bank on the eastern side of Lassen Avenue between Huron Avenue and 4th Street. It has a bench and shade. This may be large enough to cater to Coalinga Transit riders, but is too small to also be useful for waiting agricultural workers. While the stop has good amenities for waiting riders, there is nothing identifying it as a transit stop. At the very least, bus schedules and route maps should be provided for passengers (and potential riders). If night service is added in the future, lighting would also be a useful improvement to rider comfort and safety.

The Coalinga Transit schedule also lists a stop at the Huron post office about 500 feet south of Palmer Avenue. However, there is nothing at the post office to identify the stop. At a minimum, the stop should be marked by a flag sign clearly displaying routes and schedule, as described below.

While it is difficult to quantitatively determine the direct, independent impact of stop design and amenity on ridership, studies have found that passengers perceive time spent waiting for a shuttle to be at least twice as long as reality, suggesting that the relatively modest improvements required to make that experience more pleasant may represent relatively worthwhile investments.



Figure 43. Bus Stop Before and After, with an improved bus shelter for Coalinga Transit and agricultural workers.



Nothing identifies this shelter near West America Bank as a transit stop.

Flag Signs

At a minimum, every on-street stop should feature a clearly legible sign displaying route numbers and names, days and hours of operation, frequencies during these periods, names of transit providers (or private shuttles), the stop identification number and a telephone number to call for more information. Signs should be at least 12" x 18", should be mounted at least six feet above the ground, and should be visible from at least 100 feet away. They should also be placed perpendicular to the street so that they are visible from both directions, and each side should be identical. Signs should be in both English and Spanish.

Benches and Shelters

At a minimum, benches should be provided, and shelters should provide seating that is both sufficient for several passengers and relatively comfortable; seats designed only to deter users from sleeping on them can be so uncomfortable as to effectively be useless.

Shelters come in a variety of shapes, sizes and price ranges. Many firms sell basic, utilitarian models that can be installed in a few hours. Alternately, transit providers or municipalities may have architects develop custom designs reflecting local climate



Middle school children use a Huron Transit bus.

and character, although these can add significant cost. Figure 39 (previous page) shows a larger shelter for transit riders and farm laborers.

Wherever possible, locations should be prominently displayed on shelters, either using adjacent intersections (e.g., "Lassen Avenue and Myrtle Avenue") or landmarks (e.g., "Post Office"). Naming stops helps passengers to think of them as "places," not just stops, and helps to convey a sense of permanence that can serve to attract new riders.

Maps and Schedules

Ideally, every stop should provide a system map to ensure riders can be certain they are boarding the correct shuttle and can plan their trips, including transfers between routes. A simple route map attached to the pole supporting the sign using a canister is acceptable.

Schedules can also be placed in these canisters. Ideally, frequencies would also be displayed on flag signs, although this can incur significant cost if service is cut or increased (there is some cost associated with replacing paper maps and schedules).

Any posted maps and schedules should be in both English and Spanish.

INFILL DEVELOPMENT AND REVITALIZATION OPPORTUNITIES

The current economic downturn suggests that near term growth in Huron is likely to occur slowly. However, with proximity to vast agricultural land operations Huron will continue to serve as an important community for residents seeking housing, education and services. The City should work to encourage new development that works well to complement the town's historic compact pattern and that is close to Lassen Avenue. The City should also look at opportunities to create amenities to improve the downtown area along Lassen Avenue.

The General Plan calls for the City of Huron to pursue infill development since most of Huron's vacant land is close to the Lassen Avenue corridor. Also, during the design fair many residents expressed the need for a new pharmacy. Therefore, the design team looked at general design concepts for land along Lassen Avenue that is currently underdeveloped, and to enhance pedestrian amenities.

Recommendations include:

- Compact housing near the corridor mixed with new commercial development.
- Plazas should be developed to enhance the character of Lassen Avenue.
- Additional parking should be placed behind commercial development with building façades facing Lassen Avenue.
- New streets added to improve the connectivity of the community.

The following drawings in this section are conceptual to illustrate how infill spaces could be utilized to meet the needs of the community through a mix of retail, public amenities, and single-unit and multi-family housing, while also enhancing the pedestrian and providing better connectivity.



Figure 44. Infill development opportunities at 12th Street and Lassen Avenue.

Lassen Avenue Infill Near Los Amigos Food Center

The figure shown above includes development on vacant lots off of Lassen Avenue south of the Los Amigos Food Center. Commercial buildings are shown adjacent to Lassen Avenue with parking in the rear. Additional compact housing is included behind the commercial development and could accommodate a mix of single-unit and multifamily housing with common areas.

Development in this location would also provide the opportunity to construct connector streets allowing additional ways for residents to get to Lassen Avenue from residences along M Street to the east. New driveways and road connections will require permits from Caltrans.



Figure 45. Pedestrian plaza at Ninth Street and Huron Avenue.

Plaza at Railroad Avenue, Ninth Street and Huron Avenue Intersection

The unused space where Ninth Street and Huron Avenue intersect provides several opportunities for improvements. The illustration above shows a new pedestrian plaza to enhance the streetscape and provide a new location for residents to gather. The placement of a plaza in this location will provide an opportunity to re-align Ninth Street as it enters Lassen Avenue and to provide an additional street connector between Ninth Street and Huron Avenue. This will potentially reduce vehicle and pedestrian conflicts on Lassen Avenue.

This area currently lacks continuous sidewalks north of the intersection, so new sidewalks should be added along with bulbouts to enhance the pedestrian environment.

Since there are a significant number of heavy commercial and agricultural vehicles making turning movements at this intersection, any final design will have to accommodate the turning movements of those vehicles.



Figure 46. Pedestrian plaza at Railroad Avenue, Ninth Street and Huron Avenue – Before and After.



Figure 47. Infill development opportunities at Myrtle Avenue and Fourth Street.

Myrtle Avenue and 4th Street Opportunities

In the illustration above the design shows new pedestrian spaces and a skate park on the west side of Myrtle Avenue and 4th Street intersection, while new commercial development and housing units are on the southeast lots near the existing Chevron gas station.

Constructing a roundabout at this intersection provides an opportunity to incorporate a new plaza and additional sidewalk seating. The City would need to find an alternative location off of Lassen

Avenue, or north of this area, that would replace the agricultural worker parking that is displaced by the new plaza. During the charrette, some residents mentioned that workers would often hang out in this area after hours drinking and causing problems for kids travelling through this location to the residences east of Lassen Avenue. There are several empty lots north of this area that may be more suitable, and the proposed unregulated front-out parking could also be utilized for worker parking.

A skate park near this location would be an additional amenity that could complement Keenan Park and the community center.

On the southeast lots, additional commercial development would be an appropriate use on Lassen Avenue. The illustration also shows additional housing units near the school that would provide more “eyes on the street” for the area near school property. Connecting the current cul-de-sac on the south end with a new street, with sidewalks between the residences and school property, would provide an additional connector from Lassen Avenue to 4th Street. Any new driveways and road connections will require permits from Caltrans.

Chapter 4: Implementation

STRUCTURING THE PROGRAM

This chapter addresses how the City can begin developing a program to implement the strategies and potential projects identified in this report. Factors that will influence the timing for any projects include the availability of funding sources and the priorities set by the City and community.

Some short-term projects could begin soon, focusing on projects that will benefit pedestrian safety and comfort while providing visible changes. For example, striping bike lanes or marking high-visibility crosswalks at intersections are noticeable improvements, and would signal that the City is serious about making corridors more walkable and bicycle-friendly. The City could begin restriping some of the side streets such as M and Azteca in the short-term.

During the Design Fair many in the community supported putting bicycle lanes on Lassen Avenue, however, restriping this state route may require more time and coordination with Caltrans. The next time Caltrans schedules resurfacing for Lassen Avenue would be an opportunity to make the roadway changes shown in the proposed cross sections of this document.

Caltrans will be a key partner in pursuing any projects for Lassen Avenue. Roundabouts and other construction would also require more time. 4th Street and Lassen Avenue may be a good candidate to prioritize for a project with Caltrans to improve the intersection. Based on past discussions with Caltrans District 6, they have shown a willingness to utilize roundabouts in Huron. There have already been discussions with Caltrans about installing a roundabout at the Myrtle Avenue/4th Street and Lassen Avenue location since the traffic signal previously pursued by the City did not meet the necessary warrants.

Additional steps will be needed in order to install any roundabouts.

- Develop and finalize construction designs for the installation of roundabouts.
- Identify sources of funding and work with Caltrans to pursue.

The turning movements of heavy industrial and agricultural vehicles that use Lassen Avenue and Huron/Ninth Streets were taken into consideration when making the recommendations in this report. However, any final designs for projects along the corridor that involve changes to corner radii and parking restrictions will need to be designed to accommodate these vehicles. Also, any new drive-ways or street connections to Lassen Avenue will require review by Caltrans Permits and Caltrans Traffic Operations. Landscaping included with any new projects will need to be maintained by the City of Huron in agreement with Caltrans.

When installing sidewalks or curb extensions along Lassen Avenue, the City will want to coordinate with Caltrans' Americans with Disabilities Act (ADA) Infrastructure Program (http://www.dot.ca.gov/hq/bep/ada_infrastructure_program.htm) to address any ADA requirements and pursue funding for construction.

Other partners the City will need to coordinate with include the Fresno Council of Governments (FCOG) and Fresno County Rural Transit Agency (FCRTA). As of the writing of this report, Mayor Chavez sits on the FCOG Policy Board and the FCRTA Board of Directors. The FCRTA already has plans to replace bus shelters, install appropriate signing, and post bilingual schedule information in the City of Huron as funding becomes available.

FUNDING THE PLAN

A number of funding opportunities exist for leveraging funds to construct the projects recommended in this report. These programs offer alternatives for street design, community facilities, and other infrastructure.

On July 6, 2012, President Obama signed into law P.L. 112-141, the Moving Ahead for Progress in the 21st Century Act (MAP-21). Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.

MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

MAP-21 builds on and refines many of the highway, transit, bike, and pedestrian programs and policies established in 1991. The Federal Highway Administration will continue to make progress on transportation options, working closely with stakeholders to ensure that local communities are able to build multimodal, sustainable projects ranging from passenger rail and transit to bicycle and pedestrian paths.

Additional details about MAP-21 funds can be found at <http://www.fhwa.dot.gov/map21/>. Support for accessing these funds can be found through your regional transportation agency.

An additional source of assistance is Caltrans' Local Assistance Program. It oversees more than one billion dollars annually available to over 600 cities, counties and regional agencies for the purpose of improving their transportation infrastructure or providing transportation services. This funding

comes from various Federal and State programs specifically designed to assist the transportation needs of local agencies.

More details can be found at <http://www.dot.ca.gov/hq/LocalPrograms/>

Fresno Council of Governments will be another resource for the City, as it will be the agency managing some funding sources. The City receives allocations from Fresno County's Measure C Transportation fund through FCOG. More details on this funding program is available at:

<http://www.fresnocog.org/measure-c>

The following matrix identifies possible pools of funds that can apply towards each project. For some programs, the City will need to be creative and combine several projects into a package to justify receiving funding. These programs have specific types of projects that will be eligible under the program. For example, since there was a fatality in the last two most recent years in a rural area, some projects on Lassen Avenue may now be eligible for funding through the Highway Safety Improvement Program. The matrix also breaks down potential projects into short- (1-2 years), mid- (2-5 years), and long-term (> 5 years) timeframes.

PROJECTS AND IMPLEMENTATION SCHEDULE

Projects	Timing			Potential Funding Sources														
	Short-Term (1-2 yrs)	Mid-Term (2-5 yrs)	Long-Term (> 5 yrs)	Map 21 CMAQ	Map 21 Transportation Alternatives	Map 21 HSIP	Map 21 STP	Map 21 Caltrans SRTS	Map 21 Recreation Trails	Transit Development Act	State Bicycle Transportation Account	Fresno County Measure C Funds (Local)	Fresno County Measure C Funds (Pedestrian/Trails)	Fresno County Measure C Funds (Bicycle Facilities)	Infrastructure State Revolving Fund (ISHF)	Community Development Block Grants	Development Impact Fees	Other Privately Raised Funds
General Street Features																		
Rectangular Rapid Flash Beacons		X			X		X					X	X		X			X
Lighting		X		X								X			X		X	X
Trash Receptacles	X														X		X	X
Bicycle Parking	X										X				X		X	X
High Visibility Crossings	X											X	X					
Lassen Avenue																		
Bike lanes, with buffer and parallel parking between Palmer and 12th		X		X	X					X		X		X	X			
Bike lanes, with buffers, parallel parking and sidewalk buffer on west side between 12th and 11th		X		X	X					X		X		X	X			
Bike lanes, with buffer and parallel parking between 11th and Railroad		X		X	X					X		X		X	X			
Bike lanes, with buffer and front-out parking between Railroad and Myrtle		X		X	X					X		X		X	X			
Bike lanes, with buffer and parallel parking between Railroad and Myrtle (Alternative)		X		X	X					X		X		X	X			
Bike lanes, with buffer and front-out parking between Myrtle and Cherry		X		X	X					X		X		X	X			
Bike lanes, with buffers, parallel parking and sidewalk buffer on east side between Cherry and Tornado		X		X	X					X		X		X	X			
Roundabout at Palmer Avenue			X	X			X					X			X			
Roundabout at 4th Street/Myrtle Avenue			X	X			X					X			X			
Roundabout at Tornado Avenue			X	X			X					X			X			
Removal of 2-hour parking limitation near Porvenir Estate entrance	X																	
Add sidewalk between 9th and 10th Streets (east side)	X			X	X		X					X	X		X			
Fix substandard sidewalk between 11th and 12th Streets (east side)	X			X	X		X					X	X		X			
Add sidewalk between 12th Street and Palmer Avenue (west side)	X			X	X		X					X	X		X			
Reduce curb cuts between Corte Way and railroad tracks (west side)	X			X	X		X					X	X		X			
Curb Extensions/Bulb-outs at Apple Street, and other intersections		X		X			X					X	X		X			
Midblock crossing north of Apple Street		X			X		X					X	X		X			
Transit Stop improvements at West America Bank lot			X							X								
Transit Stop improvements at Huron Post Office		X								X								
Realignment at Railroad, Ninth and Huron		X		X			X					X	X		X			
New street connection to Lassen Avenue - 13th Street			X															
New street connection to Lassen Avenue - Tornado Avenue			X															
Other Streets																		
M Street - Striping	X			X	X							X		X	X			
4th Street/Myrtle Avenue - Striping	X			X	X			X				X		X	X			
Azteca Boulevard - Striping	X			X	X			X				X		X	X			
11th Street - Striping	X			X	X			X				X		X	X			
Stop signs, curb extensions at Los Angeles and Apple Streets intersection		X					X					X						
Class I bicycle trail from Ninth and Huron to east									X									
Development Projects																		
Plaza at Railroad, Ninth and Huron			X													X		X
Water and Skate Park			X												X	X		X
Infill Development at 12th			X													X		X
Infill Development at 4th			X													X		X

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Appendix

Appendix A: Meeting and Workshop Comments

Opening Workshop - Future Vision Cards

Thursday, October 25, 2013

- In ten years I would love to see Huron with better police enforcement, a nice beautiful secure place, more street lights, more job opportunities for teens, and better or more crosswalks.
- My vision for Huron is to transform it to a peaceful town, along with a high school for our youth, and public services that our community needs such as a pharmacy, and better police enforcement.
- More street poles, stop sticks at railroad crossing, clean alleys, more trees in community parks, fix cracks and holes in city streets, and a cleaner city overall. Clean up all gang members out of the city.
- A municipality that has conquered its obstacles and a place where its residents enjoy its benefits.
- We would like to have a prosperous future for our kids. We want more projects for Huron and a pharmacy where residents can obtain their medicine.
- I would like Huron to be a city where the government will put the same interest as other cities regarding security, and there should be more recreational activities where children, teenagers and adults can have fun.
- I want to see Huron in the future with a big recreational area for the kids and clean streets with better lighting and better security.
- More opportunities for adults to go to school to progress, more security for everyone and more recreational activities.
- A high school, activities for adults and kids, more law enforcement, training for adults and kids, clean community, pharmacy, more local transportation and out of town, Huron not to be dependent of Coalinga.
- Curbs and sidewalks, new structures, moderately priced housing, city fine department, ambulance and hospital.
- Huron high school, more light street, curb appeal, sidewalk around Chestnut Park.
- 13th street connected to Lassen Ave, traffic lights on 4th street/Lassen and on Lassen/Myrtle, high school and pharmacy/more jobs.
- More stop lights
- Better cops in the future, no more gang related, a high school in Huron.
- Flashing lights on stop sign, skateboard park or biking park, security with policemen better prepared, and various activities for different age groups.
- More security and better education system.
- Less violence with a prettier looking community, better education system, more involvement with schools including cross walk guards, more jobs and variety of schools.
- A drugstore, high school, and keeping young people off the streets.
- More safety, a high school, clean and healthy parks, more cross walks and a cleaner Huron.
- A high school, clean community with free activities and events for low income, trainings for adults and kids, better law enforcement, fix main streets and roads, more teachers and teachers aides, more light poles, a nice park, low income transit and out of town routers, diesel trucks in main street, pharmacy and clothing store, have local services in town.
- A pharmacy, an ambulance, good police services, great teachers at our schools, better streets for people that cross the streets,.
- Safe community, better and more trained police officers, activities for young kids.
- More security due to all the deaths, fix the sidewalks of the streets and the lines, instead of bars, we should have stores so we don't have to go so far, a high school so our kids don't have to go all the way to Coalinga.
- Security, a high school, parks and lights.
- More security, better lighting in our streets, a high school, a pharmacy, and activities for our youth, places to do exercise, lines for crosswalks.
- More security and lighting, activities for teenagers and adults, a pharmacy, orientations for school.
- Better education/high school, more activities for kids, teens such as dance classes, safer streets/cleaner streets, more known stores, clean neighborhoods- too much junk cars and trash, etc, a gym, jobs, experienced officers and a pharmacy.
- We want a pharmacy and an ambulance, we also need better lighting in the streets and reduce the violence and delinquency.
- Better education for our children, better jobs and feel

- more secure in the city.
- High school and a pharmacy.
- Public transportation to Hanford
- Huron's community wishes to have better security for future generations and a more productive town.
- Our community wants more security, more business, more childcare, bigger houses, apartments and business.
- Safer town and more police officers
- Really pretty, qualities like other towns, lights, more security for our families, and a pharmacy.
- Get rid off the bars and create parks
- This community needs more jobs and more activities for the children and young adults.
- More and better job opportunities and better security.
- A high school, a pharmacy and a park.
- Fix the alleys, better lighting for the city, we need a high school in town, open more streets like 13th street to Lassen Ave, a cleaner city, more security for our children in this town, a pharmacy and more stores,
- My vision for Huron is to grow and reduce the level of delinquency, better lighting in streets as well as in crosswalks so people can cross the streets safely.
- For the people who are in charge of the city to create more jobs, a pharmacy and better education
- I would like to have a pharmacy and a park for our youth, more security and less bars. I hope Huron in 10 to 20 years will be a better city for my children and maybe my grandchildren.
- More security for the city, more patrol in the streets and all the changes that we want for the city are great.
- A bridge at the north of the city to reduce the traffic during the raining season, opportunities that will create jobs for the residents of this town and a high school.

Technical Focus Group

Friday, October 26, 2013

- Intergovernmental Review Program process
 - Everything will need permits
 - Will make its way
- Lassen Avenue is a wider road
- Seasons are not accounted for in the Caltrans report
- Main priorities for the project:
 - Could reduce lanes though may not get exceptions on the reduced line widths or shoulder widths.

- Need to work within the current configuration/ ROW
- What about back-in angled parking?
 - There isn't a whole lot of back-in angled parking in this district
 - Most everything has been parallel
 - Not sure if people will have the driving skills for this
- Class II bike lanes & buffers
 - In Fresno, people do not know how to use bike lanes
 - Buffers may not be a good idea
 - What does it look like? —They can be done different ways
- Curb extension
 - Tighten radii is ok
 - Would allow bulbouts with corresponding low speeds
- Roundabouts
 - Tri-City Engineering also has a design of stop light at 4th Street
 - Caltrans has a draft design of a roundabout at 4th Street
 - Team is looking at using Roundabouts as gateways
 - If there is more development at Tornado, then it will make sense for one here
 - One- versus two-lane roundabouts
 - Most roundabouts in this District have been single-lane.
- Because there are low traffic volumes this area hasn't done well.
- NOV/DEC/JAN generally have lower vehicle counts
- Are there automatic traffic count locations? Probably not.
- Medians
 - Tri-City is looking at installing more medians in the north of town first.
 - It's why there's no median at apple
- Street cut through in north end
 - Caltrans will want any new cut-through done at a right angle
- Railroad Crossing
 - Currently there are no gates, lighting, etc.
 - Not hearing anything
- On Caltrans Traffic Accident Surveillance and Analysis System (TASAS) doesn't have any pedestrian crashes
- Statewide Integrated Traffic Records System

- (SWITRS) shows 13 crashes in the past 5 years
- A safety-lighting study was done recently
- Also another study on curb ramps showed these are not consistent with ADA
- ADA Survey
- Viaduct
 - There is no money for actual construction yet
 - Could be moved up 4-5 years, so could be money then.
 - It currently has a band-aid
 - The road is lowered in certain spots
 - Easier to fix when flooded
- High-viability crosswalks? Should be okay
- Yield lines
 - More of an issue
 - David would need four with
 - Submit information why important to low cost
- Pedestrian beacons
 - Not sure how well supported as they are not used yet in this district
 - From a litigation standpoint, don't use in-street lighting. It is a liability

Discussion with City Engineer

Friday, October 26, 2013

- Location at Family Dollar
 - Caltrans asked the City to put in additional ROW for a right-turn into the driveway.
- Parklets — Are they accepted by Caltrans?
- Like the idea of angled parking
- The City is having a difficult time caring and maintaining medians
- 4th and Myrtle
 - There are lots of buses and large vehicles, so 10' may be too small
 - Make sure accommodating the larger vehicles in the recommendations
- The City has made attempts to get more crosswalks
 - Made a SRTS crosswalk application
- Need to have a better record of crashes
- Flashing Beacons
 - Already funded for right in front of city hall
- Roundabouts
 - ADTs are not there for a signal.
 - Would impede traffic if did put.
 - Trying to get to next step
 - About a 130' diameter would be needed for a

- roundabout.
- Will be a lot less movement with signal, Huron was isolated.
- Warrant Studies are outdated & limited
- Underground Utilities
 - Have had meetings with PG&E
 - November 6, asked to adapt resolution to adopt two new spaces
 - Phase 1= two to three years to begin, City has credit.
 - Phase 2= 1/2-3/4 months, city does not have enough credits to do yet.
 - Looking at 2015-2020
- Railroad Crossings
 - There are no arms/lights
 - Railroad runs once or twice a week
 - This section is leased to a company in Exeter
 - Rail America owns it
 - Internally there has been talk about asking for ADA crossings
- Post Office
 - It is a privately owned property and building
 - USPS rents from them
- There is no master plan for medians
- Prescriptive ROW behind curb
 - City is limited in available ROW
- It would be good to get Caltrans to do walk the corridor to see the issues.

Walk Audit

Saturday, October 27, 2013

- Trucos= rapido
- Rampas=raised
- No cruces se quitaron (abstract?)
- En las mañanas- mucho trafico ya hay chiquitos
- 3 people died on the streets
 - Can't see the crosswalks.
- Need lighting!
- Choques (crashes) en las noches
- Road diet, median refuge
- 4th Street is where a lot of kids cross
- Banqueta y arboles
 - Curb extensions
- Hace 4 años = st. furniture
- Lights don't work
 - Rapid flash beacons would be good
- Dangerous areas

- Huron Avenue & Lassen Avenue
- 9th Street & Lassen Avenue
- Huron—go thru
 - Bike trail on the old rail line
- Square off Huron Ave and Lassen Ave

City Staff Comments

Monday, October 29, 2013

- Traffic levels have went down a lot due to the loss of farming, etc.
- Concerns
 - There are no controlled intersections on Lassen Avenue
 - Speeding
 - Oversized vehicles
 - No curbs
 - Parallel parking (there is also a lack of on site parking)
- PG&E undergrounds
 - Need the appropriate time to get it done
- Have money for roundabout
 - If there is any push back from farm community on a roundabout, we need to accommodate that
- Enforcement
 - Currently there is no policy about enforcing vehicle and pedestrian behavior on Lassen Avenue
- North of Palmer, if put in a roundabout there, City could start charging developers
- Traffic
 - Traffic in the morning runs more from the south
 - Traffic in the evening runs more from the north
- Railroad Crossing
 - The problem is that the don't put arms/bells on spurs
 - When Lassen Avenue was last resurfaced
 - City needed 50 ft. on both sides of track
 - Took two weeks extra to work out be because of insurance/liability issues.
- Think medians & more greenery will
- Council may have an issue with back-in angled parking, so its best to provide options

- Why not install a signal at 4th and Huron?
- At 7th and M there are problems with a lot of trash left there
- Cars are often parked in and near crosswalks
- At the Family Dollar there is no clearly marked crosswalk
- The alley between O and N near 11th and 12th floods and is very dark.

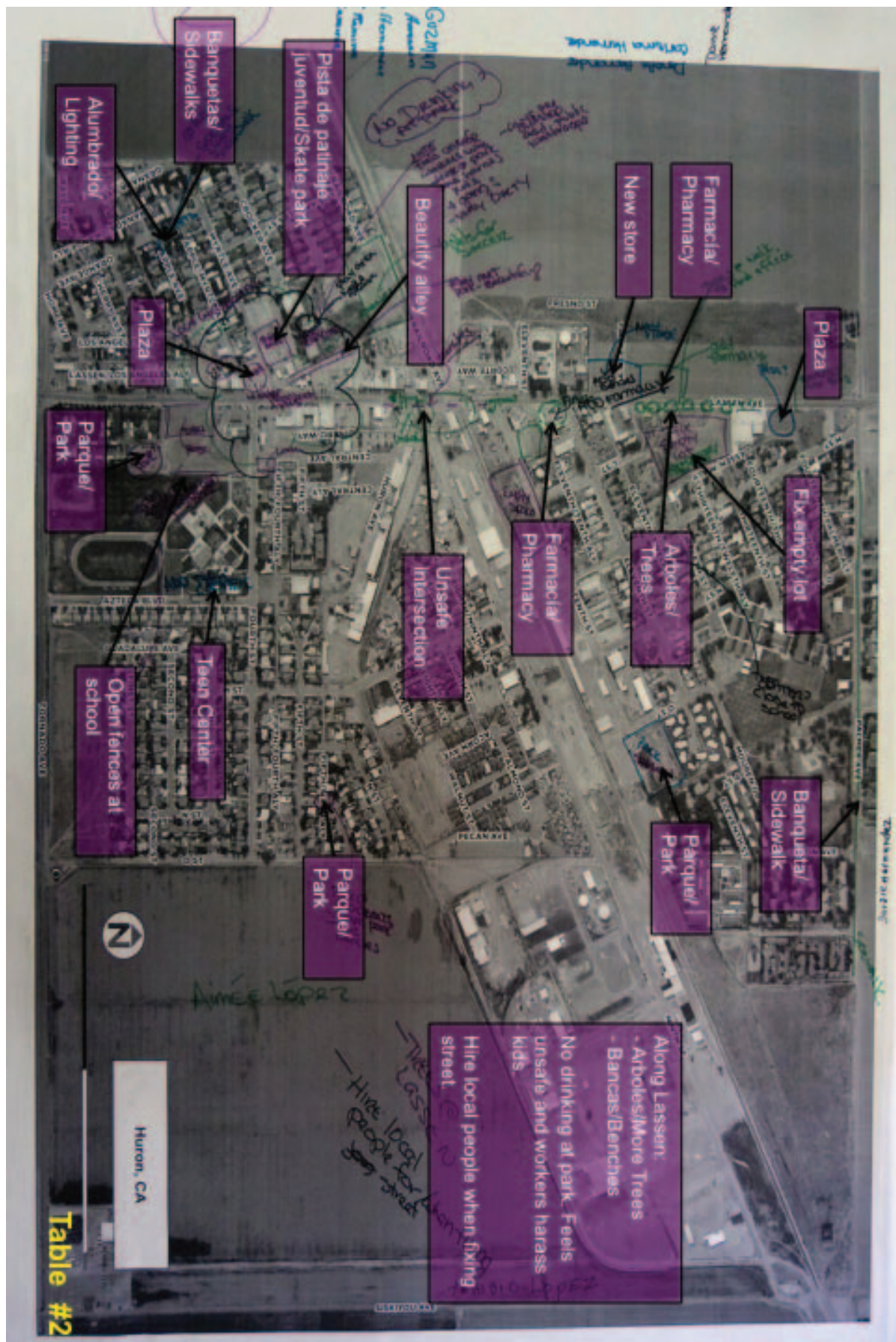
Closing Workshop

Tuesday, October 30, 2013

Appendix B: Mapping Exercises



Table #1



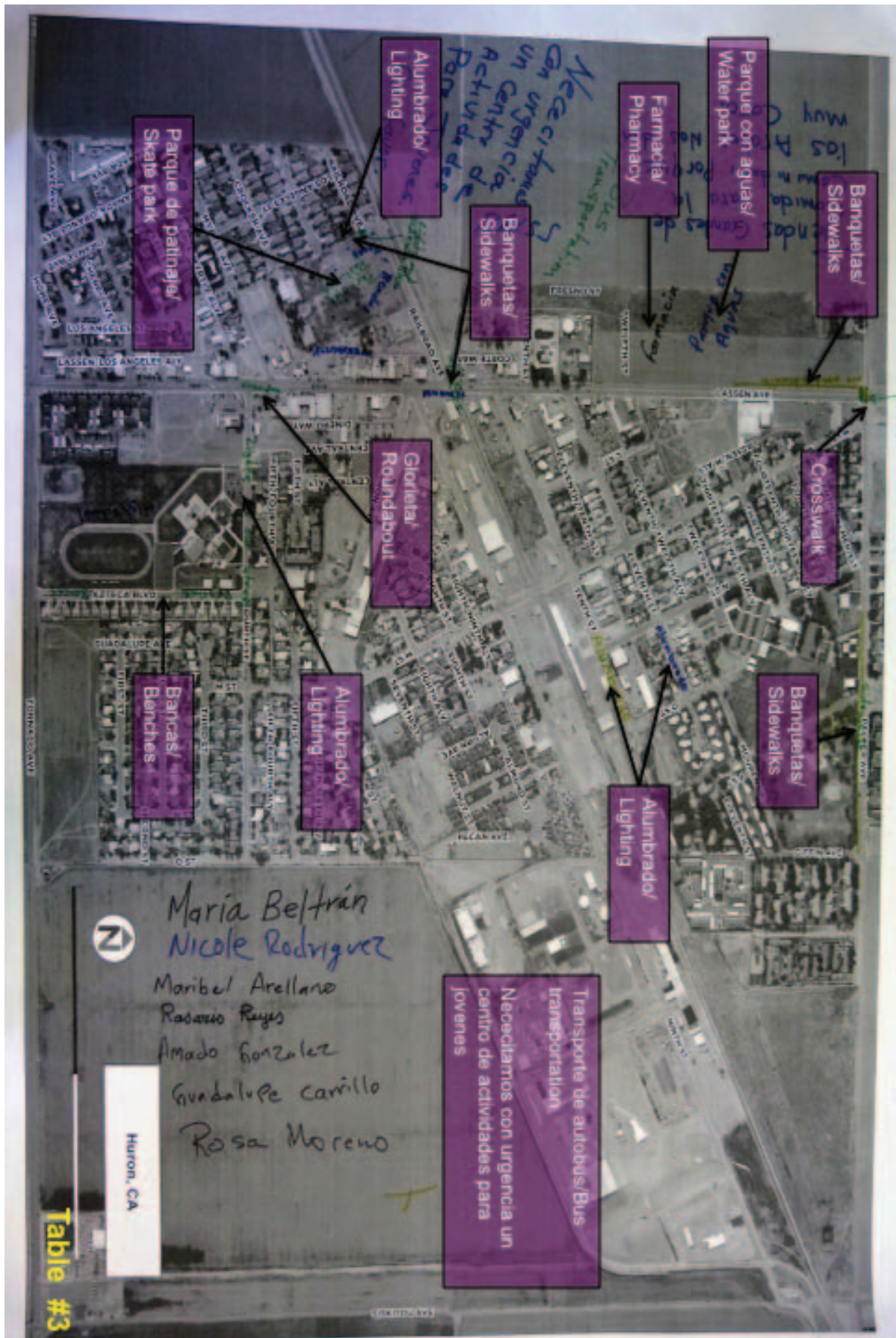




Table #4





Appendix C: Back-in/Head-out Angle Parking

Back-in/Head-out Angle Parking



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Back-in/Head-out Angle Parking**Table of Contents**

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Appendix B City Of Pottstown (2001) Proposed High-Street Traffic Calming Plan.

Appendix C City Of Vancouver (2004) Angle Back In Parking Striping.

Appendix D City Of Seattle (2005) Angle Back In Parking Dimensions.

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Back-in/Head-out Angle Parking

Introduction

In recent years the use of back-in/head-out angle parking has increased steadily in cities across North America. There are several reasons for this development. Kulash and Lockwood (2003) state that:

“Back-in/head-out diagonal parking is superior to conventional head-in/back-out diagonal parking. Both types of diagonal parking have common dimensions, but the back-in/head-out is superior for safety reasons due to better visibility when leaving. This is particularly important on busy streets or where drivers find their views blocked by large vehicles, tinted windows, etc., in adjacent vehicles in the case of head-in/back-out angled parking. In other words, drivers do not back blindly into an active traffic lane. The back-in maneuver is simpler than a parallel parking maneuver. Furthermore, with back-in/head-out parking, the open doors of the vehicle block pedestrian access to the travel lane and guide pedestrians to the sidewalk, which is a safety benefit, particularly for children. Further, back-in/head-out parking puts most cargo loading (into trunks, tailgates) on the curb, rather than in the street.”

The growing presence on American streets of sport utility vehicles (SUVs), with their bulky rear ends and (frequently) tinted windows may have spurred the trend toward back-in/head-out angle parking: when using conventional angle parking, drivers increasingly find themselves beside an SUV, with more difficult sightlines.

This report briefly discusses the design and benefits of back-in/head-out angle parking and shows where the design has already been implemented.

Some examples

In Tucson, AZ, two blocks of reverse diagonal parking have been installed along the University Boulevard Bikeway (see Figure 1), which leads into the west entrance of the University of Arizona (~36,000 students). In the two years of reverse diagonal parking, there have been no accidents along the segment, despite the large number of cyclists using the bikeway.

Figures 2-4 illustrate some of the benefits of back-in/head-out angle parking. In Figure 2 the driver is able access her trunk from the curb rather than from the street. Figures 3 and 4 show that the driver can have eye contact with oncoming traffic, in this case a bicyclist.

Figure 5 shows typical signage used to introduce drivers to back-in/head-out angle parking. For more examples on back-in/head-out angle parking, see Appendices A and B.

Back-in/Head-out Angle Parking

Figure 1 Back-in/Head-out parking in Tucson, AZ.



Source: T. Boulanger, Transportation Services, City of Vancouver, WA.

Figure 2 With back-in angle parking you can load your car on the curb, rather than in the street (Vancouver, WA).



Source: T. Boulanger, Transportation Services, City of Vancouver, WA.

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Figure 3 An 'eye-to-eye' line of sight between parker and approaching road-user (Vancouver, WA).



Source: T. Boulanger, Transportation Services, City of Vancouver, WA.

Figure 4 The parker's view of the on-coming traffic (Vancouver, WA).



Source: T. Boulanger, Transportation Services, City of Vancouver, WA.

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Figure 5 A traffic sign showing the three steps of back-in angle parking, in Kelowna, BC, Canada.



Source: City of Kelowna, British Columbia, Canada.

Advantages

Back-in/head-out angle parking is similar to both parallel and standard angle parking. As with parallel parking, the driver enters the stall by stopping and backing, but need not maneuver the front of the vehicle against the curb. When leaving the stall, the driver can simply pull out of the stall, and has a better view of the oncoming traffic.

Bicyclists

This type of parking provides a safer environment for bicyclists using the roadways. The driver is able to see the cyclist easily when exiting the stall. Several cities where back-in angle parking has been implemented have seen a reduction in number of accidents compared to the number of accidents at regular parallel parking schemes. Matt Zoll at

Back-in/Head-out Angle Parking

Tucson-Pima County Bicycle Advisory Committee says that after implementing the back-in/head-out angle parking scheme in Tucson they “went from an average of 3-4 bike/car accidents per month to no reported accidents for 4 years following implementation.”

Visibility

In contrast to standard angle parking the visibility while exiting a back-in/head-out angle parking into traffic is much improved. When the driver is backing up (into the stall), the driver is in control of his lane: traffic behind either waits, or changes lanes.

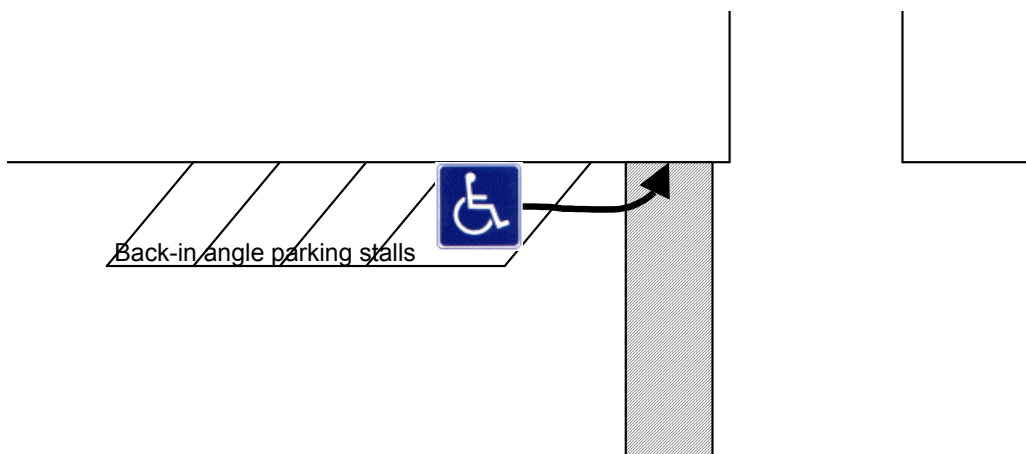
Steep terrain

Back-in angle parking can also be useful on steep terrain: if used on the correct side of the street, it causes drivers to automatically curb their wheels, which in turn prevents runaway autos. Used on the wrong side of a steep street, however, it is likely to cause more runaways.

Disabled parking

In Pottstown, PE, a 13-foot wide handicap accessible stall has been incorporated into the angle parking as the last space, intersection nearside, of each block. This places each disabled parking stall close to the existing curb ramps, and allows the wheelchair-using drivers to unload out of the way of traffic (see Figure 6). By contrast, the street’s previous parallel parking arrangement could not be safely used for disabled parking, and conventional angle parking raised safety concerns for the street’s proposed bicycle lanes.

Figure 6 A disabled parking stall located right next to the pedestrian crossing and the curb ramp.



Back-in/Head-out Angle Parking

Safety

As SLCTrans (2004) states, “one of the most common causes of accidents is people backing out of standard angled parking without being able to see on-coming traffic. Reverse angled parking removes this difficulty.” It also improves safety for cyclists, and for loading/unloading the trunk of the car. Similarly, the *Urban Transportation Monitor’s* recent article on back-in angle parking reported reduced accidents and benefits for bicyclists in several communities. In all, back-in/head-out angle parking is a good choice when compared to conventional head-in angle/back-out parking and parallel parking.

Cities using back-in/head-out angle parking

The list of cities in North America that use back-in/head-out angle parking is growing. Figure 7 lists some of these communities.

Figure 7 Cities using back-in/head-out angle parking.

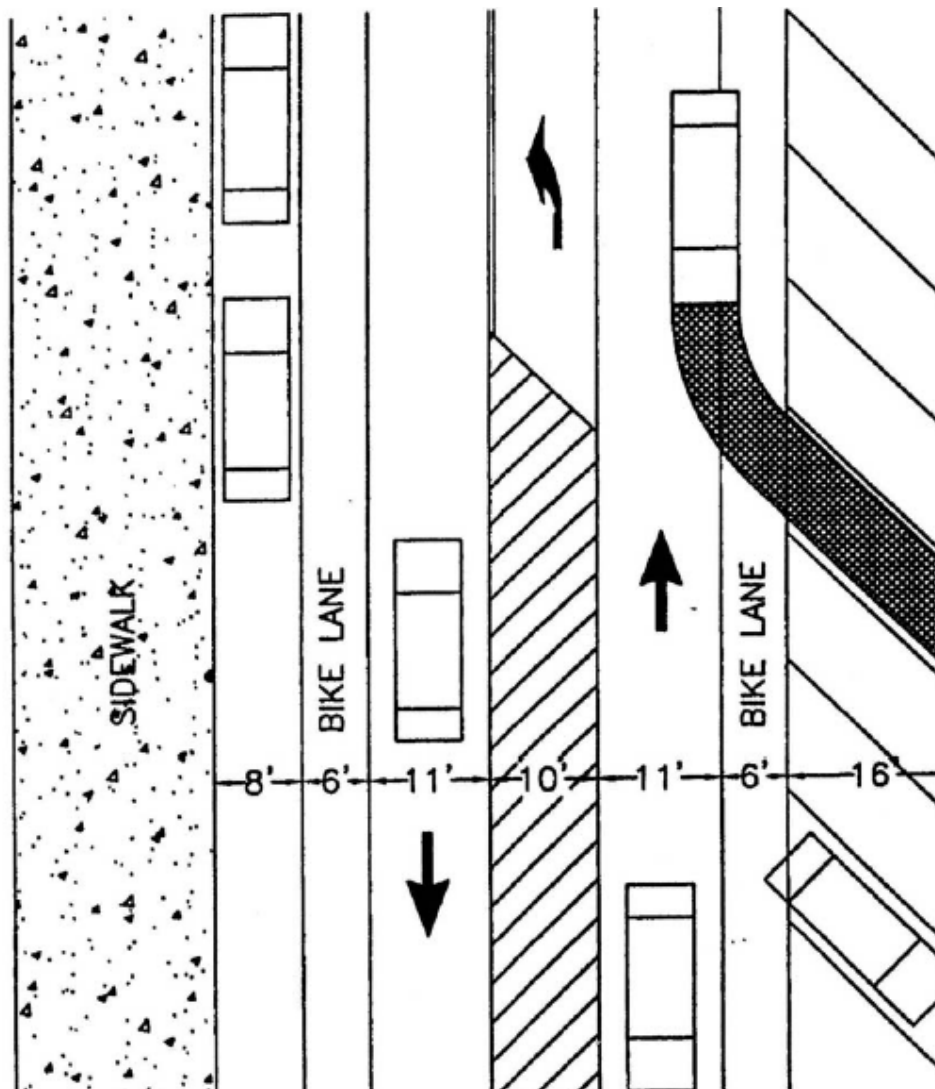
City	Source	
Arlington, VI	Dan Burden	Walkable Communities, Inc.
Birmingham, AL	Russ Soyering	City of Traverse City, MI
Burnaby, Canada	Dan Burden	Walkable Communities, Inc.
Charlotte, NC	Dan Burden	Walkable Communities, Inc.
Chico, CA	Patrick Siegman	Nelson\Nygaard
Everett, WA	Michael M. Moule	Livable Streets, Inc
Honolulu, HI	Dan Burden	Walkable Communities, Inc.
Indianapolis, IN	Michael M. Moule	Livable Streets, Inc
Knoxville, TN	Michael M. Moule	Livable Streets, Inc
Marquette, MI	Russ Soyering	City of Traverse City, MI
Montreal, Canada	Michael M. Moule	Livable Streets, Inc
New York, NY	Dan Burden	Walkable Communities, Inc.
Olympia, WA	Dan Burden	Walkable Communities, Inc.
Plattsburgh, NY	Dan Burden	Walkable Communities, Inc.
Portland, OR	Michael M. Moule	Livable Streets, Inc
Pottstown, PA	Michael M. Moule	Livable Streets, Inc
Salem, OR	Todd Boulanger	City of Vancouver, WA
Salt Lake City, UT	Dan Burden	Walkable Communities, Inc.
San Francisco, CA	Michael M. Moule	Livable Streets, Inc
Seattle, WA	Dan Burden	Walkable Communities, Inc.
Tacoma, WA	Dan Burden	Walkable Communities, Inc.
Tucson, AZ	Michael M. Moule	Livable Streets, Inc
Vancouver, WA	Todd Boulanger	City of Vancouver, WA
Ventura, CA	Todd Boulanger	City of Vancouver, WA
Washington, DC	Dan Burden	Walkable Communities, Inc.
Wilmington, DE	Michael M. Moule	Livable Streets, Inc

Back-in/Head-out Angle Parking

Typical dimensions

Particularly when accommodating bike lanes within the roadway, back-in/head-out angle parking is useful. Figure 8 shows the cross-section of such a roadway in Pottstown, PA. Appendix C and D shows Vancouver's, WA, and Seattle's, WA, choices of dimensions for this type of parking.

Figure 8 Cross-section of a roadway accommodating both bike lanes and back-in/head-out angle parking.



Source: City of Pottstown (2001) Proposed High Street Traffic Calming Plan.

Back-in/Head-out Angle Parking

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Urban Transportation Monitor. Back-in Angle Parking. June 11, 2004, page 1.